APPENDIX D

ALTERNATIVES ANALYSIS SUMMARY

This appendix provides information prepared through the alternatives analysis portion of the Plan update. This appendix is divided into three sections:

- Memoranda Prepared in Support of Alternatives Analysis Process
- May 2007 Presentation to MPO TAC: First Level Alternatives Screening
- June 2007 Presentation to MPO TAC: Second Level Alternatives Screening
- Conceptual Drawings of Alternatives Maintained into Second Level Screening
- Summary Table of the Alternatives Analysis

APPENDIX D:

MEMORANDA PREPARED IN SUPPORT OF ALTERNATIVES ANALYSIS PROCESS

MEMORANDUM

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To: **Earl Haugen**
MPO Technical Advisory Committee

Date: February 7, 2007

Subject: Street / Roadway Improvement Alternatives Assessment Process

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BACKGROUND/PURPOSE

The purpose of this memorandum is to provide documentation of the alternatives evaluation process that will be employed in the update of the street / highway system element of the Long-Range Transportation Plan. It is anticipated that this process will be fully initiated in February 2007, after the following tasks are completed:

- Development and application of the future year (2035) Grand Forks – East Grand Forks travel demand model.
- Development of 2035 traffic forecasts for the Grand Forks – East Grand Forks street and highway network.
- Identification of 2035 capacity deficiencies on the Grand Forks – East Grand Forks street and highway network.

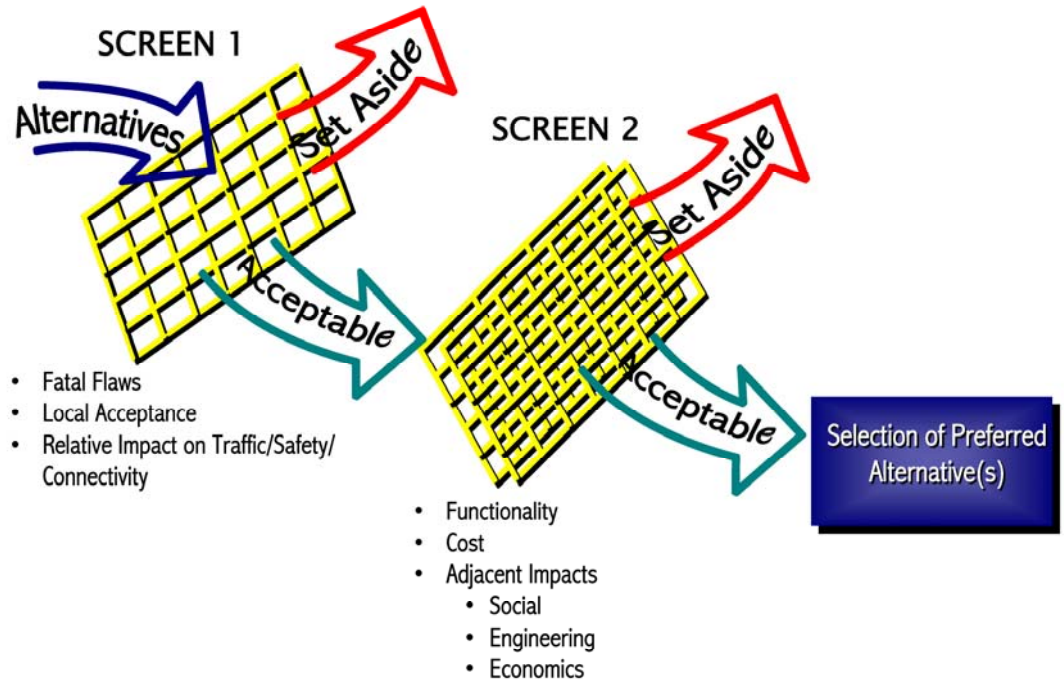
It is anticipated that there will be Alternatives Analysis Workshops held with the TAC in March and April of 2007. These workshops will be the setting where decisions will be made regarding selection of improvement alternatives. Thus, we believe it is important to provide you with this memorandum to inform those who will be actively involved about the process that is being initiated by the MPO.

PROCESS OVERVIEW

To this point in the Plan Update, the efforts of the study team have focused on identifying existing and future issues and deficiencies. The next stage of the Plan Update will focus on developing and evaluating a list of potential improvements, or alternatives, to address each issue and / or deficiency. The alternatives analysis process will incorporate a two-phased screening of the entire list of potential improvements to the street and highway network, referred to as the "universe of alternatives". The two-level alternatives analysis process will include:

- *Phase 1*: The primary purpose of this phase in the analysis is to narrow the universe of alternatives by removing those that do not reasonably reflect the transportation goals or do not have local support. In this phase, the study team will review each of the street / highway alternatives relative to a set of criteria that reflect the local transportation system goals and the federal MPO planning factors to identify potential fatal flaws. Those alternatives identified as containing fatal flaws will be dismissed from further consideration and reasons for eliminating them will be documented.
- *Phase 2*: For each of the alternatives that were maintained through the Phase 1 assessment, conduct additional assessment of the positive and negative aspects of the concept relative to the established standards / evaluation criteria. The product of this stage of the alternatives analysis will be a prioritized listing of the projects to be included in the transportation plan. The prioritized listing will be based on how well an individual alternative (or combination of alternatives) scored compared to the other alternatives. Each of the alternatives will be scored using similar criteria and rating scale.

The two-level alternatives analysis process is illustrated below:



The screening process will rely on the standards / evaluation criteria that were documented to the TAC and reviewed at the October 11, 2006 TAC meeting. The evaluation criteria are the performance measures which have been established for quantifying how well an alternative achieves the locally-defined Plan goals and objectives. Each criterion represents an evaluation perspective that generally falls into one of three general categories:

- *Social Perspective,* including assessments of economic benefits and costs, project consistency with existing land use plans and economic initiatives, public support and community connectivity / continuity.
- *Environmental Perspective*, including transportation impacts to adjacent natural and built environs.
- *Engineering / Traffic Perspective*, including assessments of benefits / impacts to travel safety, congestion, constructability, and operations and maintenance.

CORE 2030 RECOMMENDATIONS

The current 2030 Street and Highway Plan is relatively new (completed in 2003) and contains long-range project recommendations that are relevant to issues and deficiencies that still exist, or are likely to be identified in the future year analyses. The core set of 2030 Plan recommendations will be revisited in the 2035 Plan alternatives analysis, relative to substantial changes in the development patterns observed between the 2030 and 2035 plan concepts. For those core recommendations where the development concept has changed substantially, alternatives to the 2030 plan recommendation will be addressed. If there are not significant development assumption variations, or anticipated funding scenario differences that warrant re-assessment, new alternatives to the core list of projects will not be addressed. The list of core projects will, however, be evaluated relative to their implementation timing. This core list of projects includes:

- I-29 / 32nd Avenue Interchange Improvements
- Widening of 32nd Avenue to 6-lanes between Washington Street and I-29
- 17th Avenue Overpass of I-29
- 42nd Street Underpass of DeMers Avenue and the BNSF Railroad
- Adding an I-29 interchange at Merrifield Road
- DeMers / Washington Intersection Improvements
- Central Spine / BNSF Railroad Grade Separation Project
- Red River crossings located at Merrifield Road and 32nd Avenue

One notable project that was recommended in the 2030 plan which will be fully re-evaluated in this update is the widening of Columbia Road to 6-lanes from south of 32nd Avenue South to DeMers Avenue. While congestion still exists on Columbia Road at 17th Avenue South, it has been determined that current (2005-2006) traffic volumes and peak hour delays have decreased along this corridor since 2002, the year used for the existing conditions analyses in the 2030 Plan. The reduced traffic volumes and delays along Columbia Road are attributed to improvement of 42nd Street, a parallel corridor which has diverted significant levels of traffic from the Columbia Road corridor.

PHASE 1 OVERVIEW

In the first phase of the alternatives assessment, the Universe of Alternatives will be developed to address:

- Locations where current and/or future capacity and / or connectivity deficiencies were identified.
- Locations where local planning and programming documents have identified potential corridor extensions and or improvements.
- Safety concerns identified through the analyses completed by the study team and through the public involvement process. Issues have been collected through MPO TAC meetings, public feedback (received via the August 2006 public meeting, MPO website feedback and the October 2006 newsletter insert in the Grand Forks and East Grand Forks newspapers), and meetings with other local stakeholders.
- Roadway improvements / extensions into areas identified as residential and employment growth areas over the planning horizon (through the 2035 planning period).
- Provide for a regional system that transports persons and goods efficiently within and through the metropolitan area.

While the process of determining the most appropriate action for addressing a specific transportation capacity issue can be quite complex as the technical process interacts with the public involvement process, identification of the universe of street / roadway improvement alternatives can be fairly straightforward. The possible alternatives generally fall into one, or a combination of, the following categories:

- Expand the deficient corridor by adding the through or turning lanes to reduce / eliminate the identified capacity or continuity gap deficiency. This category also includes smaller scale intersection improvements that do not result in additions to through capacity. These small-scale improvements are termed transportation system management (TSM) improvements.
- Develop alternate corridor(s) that would share a part of the traffic load currently or forecasted to be within the deficient corridor.
- Improve existing adjacent or complementary corridors, through adding capacity or increasing the level of connectivity and/or continuity, that would share the traffic load currently carried with the deficient corridor.
- Create one-way pairs. If the deficient corridor carries traffic in both directions, additional capacity can be created by converting the corridor to one-way flow and pairing it with a complementary route that also carries traffic in only one direction.
- Upgrade the type of intersection treatment employed at the junction of two routes. The improvements could include upgrading a stop-controlled intersection to signal control, modifying a stop- or signal-controlled intersection to a roundabout (depending on the traffic patterns, levels and potential right-of-way impacts), or upgrading an at-grade intersection to a grade separated interchange.

- Reduce the level of residential and/or employment growth assumed / allowed in either the region or within the travelshed of the deficient corridor. This alternative is most appropriate for corridors located outside the mature areas of the community.

To accomplish the alternatives analysis goals of: 1) reviewing a broad range of alternatives, and 2) completing the assessment in a reasonable time frame, the first step in the screening includes review of the alternatives using more broadly-described measures intended to determine whether an alternative has a fatal flaw. A fatal flaw generally falls into one of the following categories:

- The alternative ultimately does not address the intended issue, whether operations- or safety-related.
- The concept being evaluated results in a substantial impact on the adjacent environment (either built or natural) that cannot be reasonably mitigated.
- The estimated cost of a concept exceeds or would require a disproportional amount of the transportation improvement budget estimate for the metropolitan area.
- The concept cannot be reasonably constructed using current engineering standards or through allowing reasonable exceptions to the standards.

It should be noted that maintaining an alternative following the initial screening does not necessarily mean that the consulting team believes that the maintained alternative should be included in the recommended long-range transportation plan. The alternatives maintained through the initial screening will be reviewed in greater detail in Phase 2 to establish whether the concept meets the transportation goals and could reasonably be funded over the planning period. Many of the concepts/ideas that are maintained through the initial screening could very well be eliminated, or set aside, through completion of the second level of the screening analysis. The recommended plan will not be identified until after the second level of analysis.

PHASE 1 ACTIVITIES RELATED TO THE CORE 2030 RECOMMENDATIONS

Phase 1 will also include a verification of the general analyses completed in 2003 for the core projects recommended in the 2030 Plan. This verification is warranted because the planning horizon has been extended from 2030 to 2035 to include a new land development concept (albeit not significantly different from the 2030 Plan). Thus, the potential exists for some changes in future levels / patterns of forecasted travel.

This re-assessment will include a review of forecasted traffic volumes / operations results and impacts to the built and natural environment associated with each recommended improvement. If there are not significant changes in these benchmarks, there will be no further analyses of the core 2030 recommendations in Phase 1, and each will be maintained into Phase 2 as a concept addressing the respective issue or deficiency.

PHASE 1 OUTCOMES

The results of the initial screening phase will include:

- Maps highlighting the issue locations / the universe of alternatives.
- A list of potential reasonable solutions / improvements by specific issue area. This list will include the relevant recommended improvements from the 2003 plan.
- A list of evaluation criteria, related to identifying potential fatal flaws, as listed in the four categories above.
- A summary matrix of the preliminary evaluation of the alternatives, organized by issue area and presented in tabular format. In the first-level alternatives screening summary table, the benefits and impacts of the alternatives will be summarized from the social, engineering and environmental perspectives documented on page 3 of this memo. The summary will include such evaluations as:
  - *Social*: How does the alternative support the anticipated development plan/concept? How does the concept support/impact on-going land use and economic development planning efforts? What is the expected relative magnitude of the project costs?
  - *Engineering*: Does the idea/concept address capacity issues identified for the current and /or future conditions? Does the concept/idea address safety issues identified? How does the idea/concept fit in to the physical constraints of the adjacent built and natural environment and can the concept reasonably be constructed within that environment?
  - *Environmental*: What is the extent of impact to residential and commercial / industrial properties? What are the potential significant impacts to the natural environment associated with implementation of the idea / concept? What is the extent of impacts to parks and schools?

  The table will also include a "Phase 1 Action" column, documenting whether an alternative is discarded or maintained and carried forward into the second-level screening.
- A first-level screening workshop. As part of this first workshop, a brief summary of each concept tested in the screening will be provided. Any questions required to provide additional clarity can be asked at that time, or prior to the meeting if desired.

PHASE 2 OVERVIEW

The alternatives that are maintained through the Phase 1 screening and promoted to Phase 2 will be those that provide utility in meeting the transportation goals and address identified transportation issues / deficiencies. This is not to say that all of the alternative concepts maintained into Phase 2 should be implemented, nor should it be concluded that there is overwhelming local and regional consensus for implementation of each idea / concept on the "maintain" list. While many of the ideas / concepts carried forward will be eliminated in Phase 2, two characteristics will be true of the alternatives that are carried forward:

- The alternatives, at a minimum, provide a basic amount of utility towards meeting the long-range transportation goals for the street / roadway system.
- The alternatives do not contain obvious fatal flaws. For example, each concept carried forward could be constructed and meet current roadway design standards, but to meet the standards current access may need to be modified, current grades may need to be modified, substantial earthwork in a new corridor may be required, property would need to be acquired for right-of-way, etc.

Not all of the alternatives included in the list will have the level of community support that will be required to see them through to implementation. Thus, some will be eliminated or placed in a low position on the priority list during the Phase 2 evaluation. The purpose of the Phase 2 screening will be to sift through each of the remaining ideas / concepts, further evaluate them, and prioritize the alternatives such that those that are likely to be implemented by 2035 provide a street / roadway *system* that supports the region's transportation goals and is cost constrained.

Development of the prioritized list will require completing more than one iteration of review, such that the *initial iteration* through the Phase 2 will score each of the maintained alternatives based on the established evaluation criteria that cover the social, engineering and environmental perspectives. An example scoring system with definitions is included in Table 1. The scoring results will be completed with the goal of assisting in selecting the locally preferred concept for addressing a particular corridor. For example, several concepts for addressing congestion at the Columbia Road – 17th Avenue intersection might be maintained into Phase 2, including widening the corridor to a six-lane arterial to increase capacity or adding more turn lanes to expedite turning traffic at key intersections along the corridor. Through the first iteration the desire would be to identify which of the ideas / concepts is the preferred, by providing a range of evaluation criteria broad enough and well enough defined to allow for selection of a preferred concept through the scoring results.

In the subsequent *iteration(s)*, the study team will address the requirement that the Transportation Plan be cost constrained, while also recognizing that the transportation system goals are multi-faceted, and as there is not a single-minded focus of what is needed in the community. As such, the study team will be required to make some difficult decisions involving trade-off as to which projects will be included in the funded list and which will not. The scoring summary information can be used to assist in prioritizing the project list. Those projects scoring the highest, in the case where the scoring is used as the primary determinant, would be included in the list as the highest priorities.

It is unlikely that the fundable list will be developed through simply reviewing the project scoring, but the scoring can be used as a tool in making difficult decisions. As the scoring incorporates a very broad range of criteria, the results can be reviewed by the committees as we discuss the recommended list and it is possible / acceptable to provide a weighting to the various criteria to reflect the importance of each. The importance-weighted scoring could very well be used in resolving debates on qualitative topics that could come up through the continued assessment.

Table 1
Example Transportation System Improvement Prioritization Criteria

Assessment Perspective / Measure of Effectiveness	Score / Definition			
	6	4	2	0
Social				
Local Public Support for Project / Program	Significant Community Support / Consistent with Other Plans / Guidelines	Moderate Support from Community / Leaders	Minimal Support from Community / Leaders	No / Limited Support
Multi-Modal Support	Project Includes Significant Multi-Modal Links (Transit / Non-Motorized / Roadway); Incorporated into Design	Project Includes Moderate Multi-Modal Links (Transit / Non-Motorized / Roadway)	Project Includes Minimal Multi-Modal Links (Transit / Non-Motorized / Roadway)	Project Does Not Address Multi-Modal Connectivity
Consistency with Local / Regional Plans	Supports the Planning District / Comprehensive Plan Concepts and is in TIP	Supports the Planning District / Comprehensive Plan Concepts	Not Addressed in Other Plans	Inconsistent with Planning District / Comprehensive Plan / Subarea Plans
Connectivity / Continuity	Provides Significant Connections (Roadway / Trail / Transit) Between Key Areas in Study Area	Provides Connectivity Between Neighborhoods, Limited Impact to Neighborhood Integrity	Provides Improved Circulation Within a Neighborhood, Limited Impacts to Integrity	Isolated Route (New Road) / Provides Access to Growth Area, But No Through Connection
Environmental				
Level of Impact to VMT / VHT / Trip Generation	Positive Impact by Reducing Growth in VMT, VHT or Trips	Moderate Impact by Slightly Slowing the Increase in VMT, VHT and/or New Trips	Minimal Impact on Rate of Change in VMT, VHT and/or New Trips	No Impact / Increases VMT / VHT / New Trips
Air Quality Impacts	Significant Decrease in Transportation Emissions	Moderate Decrease in Transportation Emissions	Minimal Increase or Decrease in Transportation Emissions	Increase in Transportation Emissions
Impacts to Adjacent Built / Natural Environment	No / Few Impacts to Adjacent Homes, Businesses, Natural Features	Minimal Impacts to Adjacent Homes, Businesses, Natural Features	Moderate Level of Impacts to Adjacent Homes, Businesses, Natural Features	Significant Level of Impacts to Adjacent Homes, Businesses and/or Natural Features
Economic Impact	Project Would Result in Significant Improvement to Goods and People Movement / Tourism Enhancement	Supports Improvement to Movement of People and Goods / Tourism Enhancement	Project Supports Speculative / Temporary Opportunities	No Impact / Negative Impact
Cost	Low Cost (Locally) and Within the Transportation Budget Constraints	Moderate Local Cost / Within Transportation Budget Constraints	Moderate / High Cost, But Within the Transportation Budget Constraints	High Cost / Not within the Transportation Budget Constraints
Operations and Maintenance	High Maintenance Priority / Would Significantly Reduce Operations / Maintenance Costs	Moderate Maintenance Priority / Reduces Operations / Maintenance Costs	Neutral Affect on Operations / Maintenance Costs	Results in an Increase in Operations / Maintenance Costs

Table 1
Example Transportation System Improvement Prioritization Criteria

Assessment Perspective / Measure of Effectiveness	Score / Definition			
	6	4	2	0
Engineering				
Safety	Project Targets High Crash Location	Project Targets Moderate Crash Location	Generally Safer Design Concept Relative to Existing / No Perceived Crash Problem	No Impact
Design Standards	Addresses All Deficient Standards (Width / Grade / Alignment / Surface)	Addresses Most Deficient Standards (Width / Grade / Alignment / Surface)	Addresses Some Deficient Standards (Width / Grade / Alignment / Surface)	Project Does Not Address Design Standard Deficiencies
Feasibility to Construct	Concept Plan Reasonably Reflects Design Standards / Practices. No Substantial Change in Access Required.	Critical Design Criteria Can Be Met, But Moderate Changes in Access are Needed.	Minor Design Criteria Must be Relaxed and Moderate Changes in Access are Needed.	Concept Plan Does Not Meet Design Requirements without Substantial Modification to Current Access
Congestion Relief	Mitigate Congestion in a Corridor Currently Severely Congested	Mitigate Congestion in a Corridor Currently Moderately Congested or Forecasted to be Severely Congested	Mitigate Congestion in Corridors Forecasted to be Moderately Congested	Limited / No Impact on Corridor Congestion

PHASE 2 ACTIVITIES RELATED TO THE CORE 2030 RECOMMENDATIONS

Two activities will be completed in Phase 2 to re-evaluate the core recommendations from the 2030 Plan:

- *Prioritization*: In Phase 2, the URS team will re-evaluate the relative priority of each core project. The priority of the project may be adjusted as a result of the scoring of the core projects in relation to any new projects introduced in the 2035 Plan update.
- *Project Cost / Funding*: In Phase 2, the URS team will update the cost estimates for each core project. Street / highway construction costs have increased significantly since the 2030 Plan was completed. We will update the cost estimates to be consistent with 2006 / 7 unit costs. Regional street / highway funding capabilities will then be evaluated for each project in relation to the updated cost estimates.

PHASE 2 OUTCOMES

The results of the Phase 2 screening will include:

- A document that summarizes the second-level (detailed) screening of alternatives, organized in a similar fashion as in Phase 1.
- Evaluation and documentation of street / highway funding availability.
- The second-level screening workshop. This workshop would include a screening of each of the concepts maintained through Phase 1 would be further evaluated from the social and cost / financial feasibility standpoints.
- A set of materials for presentation to the Policy Board, the Planning Commissions, and the public and other organizations as warranted / desired.
- A preliminary set of recommended improvements for inclusion in the Street / Highway Plan.

ACTION REQUESTED

Please review this document in anticipation of upcoming TAC meetings, where your input in this process will be requested and is essential. It is anticipated that the following Street / Highway Plan topics will be covered at the next three meetings:

- *February 2007*: Presentation of future traffic forecasts, future traffic deficiencies and overview of alternatives analysis process.
- *March 2007*: Phase 1 Alternatives Analysis Workshop
- *April 2007*: Phase 2 Alternatives Analysis Workshop

MEMORANDUM

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To: **Earl Haugen**
MPO Technical Advisory Committee

Date: May 2, 2007

Subject: Roadway Improvement Alternatives – Initial Screening

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BACKGROUND/PURPOSE

The purpose of this memorandum is to provide documentation of the alternatives analysis process underway in support of the update of the Grand Forks – East Grand Forks Street and Highway Plan update, including:

- Capacity deficiencies based on existing and future (2035) conditions traffic.
- Alternatives reviewed as mitigation for the current/future capacity deficiencies.
- An overview refresher of the alternatives assessment process.
- The evaluation criteria used in the initial screening of the alternatives.
- A summary of the initial assessment of the alternatives reviewed.

The information included in this memorandum is intended to be a summary of the material to be discussed at the TAC meeting scheduled for May 9, 2007. The intent of providing this memorandum prior to the meeting is to provide committee members with an idea as to the alternatives and many of the basic positive and negative elements of each alternative ahead of the meeting so that you will have time to review the material.

FUTURE BASE CONDITION CAPACITY DEFICIENCIES

Documentation of the preliminary 2035 capacity deficiencies was included in the "Preliminary 2035 Peak Hour Traffic Forecasts and Traffic Operations" memorandum provided to committee members on April 20. As is documented in the memo, the traffic operations analysis were based on conducting PM peak hour intersection analyses using the Synchro software program, utilizing the methodologies found in the 2000 Highway Capacity Manual. Traffic operations were analyzed at key study area intersections for current (2005-2006) traffic levels and for forecasted 2035 traffic levels.

To supplement the intersection-based Synchro-HCM analysis, a planning-level screening of capacity deficiencies, as presented at the March 28 TAC meeting, was also included to supplement the analyses completed at the selected intersections. This planning-level capacity screening identified locations where forecasted 2035 daily traffic volumes approach or exceed the estimated daily capacity at level-of-service C, or level-of-service D along MnDOT-maintained routes. Figure 1 displays both the results of the intersection-based HCM analysis for 2006 and 2035, and displays corridors where future traffic volumes approach or exceed the acceptable capacity thresholds.

ROADWAY ALTERNATIVES ANALYSIS

OVERVIEW

In this first phase of the alternatives assessment, the preliminary Universe of Alternatives has been developed to address:

- Locations where current and/or future capacity and / or connectivity deficiencies were identified.
- Locations where local planning and programming documents have identified potential corridor extensions and or improvements.
- Safety concerns identified through the analyses completed by the study team and through the public involvement process. Issues have been collected through MPO TAC meetings, public feedback (received via the August 2006 public meeting, MPO website feedback and the October 2006 newsletter insert in the Grand Forks and East Grand Forks newspapers), and meetings with other local stakeholders.
- Roadway improvements / extensions into areas identified as residential and employment growth areas over the planning horizon (through the 2035 planning period).
- Provide for a regional system that transports persons and goods efficiently within and through the metropolitan area.

While the process of determining the most appropriate action for addressing a specific transportation capacity issue can be complex due to balancing the technical process with the public involvement process, identifying the universe of street / roadway improvement alternatives can be fairly straightforward. The possible alternatives generally fall into one, or a combination of, the following categories:

- Expand the deficient corridor by adding the through or turning lanes to reduce / eliminate the identified capacity or continuity gap deficiency. This category also includes smaller scale intersection improvements that do not result in additions to through capacity. These small-scale improvements are termed transportation system management (TSM) improvements.

- Develop alternate corridor(s) that would share a part of the traffic load currently or forecasted to be within the deficient corridor.
- Improve existing adjacent or complementary corridors, through adding capacity or increasing the level of connectivity and/or continuity, that would share the traffic load currently carried with the deficient corridor.
- Create one-way pairs. If the deficient corridor carries traffic in both directions, additional capacity can be created by converting the corridor to one-way flow and pairing it with a complementary route that also carries traffic in only one direction.
- Upgrade the type of intersection treatment employed at the junction of two routes. The improvements could include upgrading a stop-controlled intersection to signal control, modifying a stop- or signal-controlled intersection to a roundabout (depending on the traffic patterns, levels and potential right-of-way impacts), or upgrading an at-grade intersection to a grade separated interchange.
- Reduce the level of residential and/or employment growth assumed / allowed in either the region or within the travelshed of the deficient corridor. This alternative is most appropriate for corridors located outside the mature areas of the community.

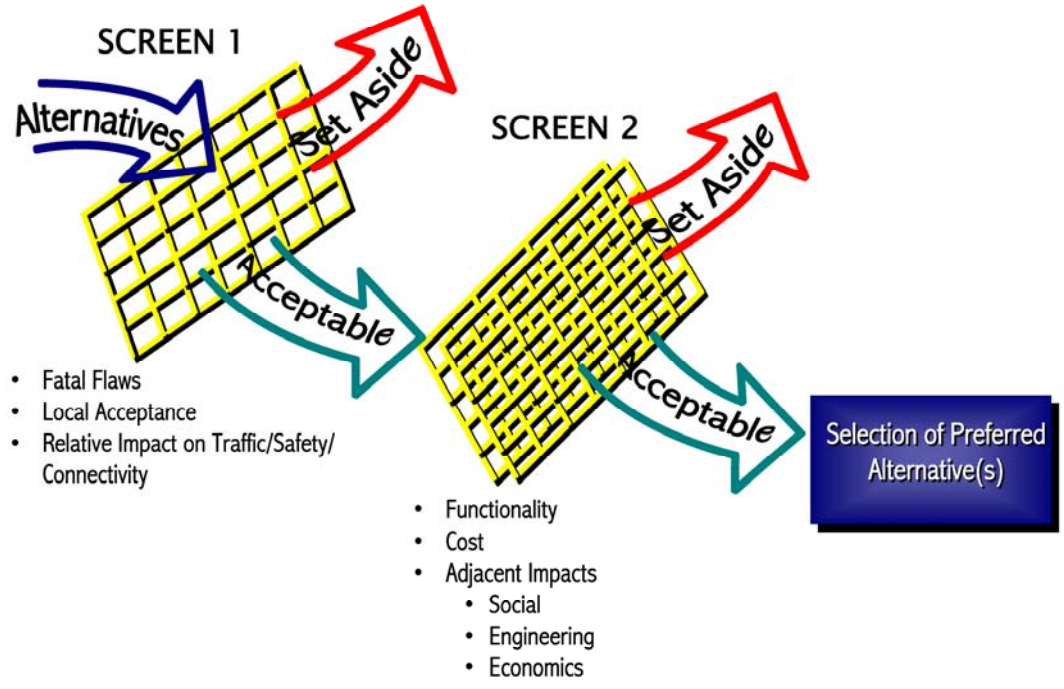
OVERVIEW OF ALTERNATIVES REVIEW

As we have outlined in the original scope of work and discussed at the February 2007 TAC meeting, the alternatives screening process being employed to obtain the recommended improvement concepts involves a two-step review process. The information in this memorandum is intended to support the initial screening. As was described, the two-step screening is intended to allow us to review a broad range of concepts and complete the entire alternatives assessment in a reasonable time frame.

To accomplish both goals (review of a broad range of alternatives and complete the assessment in a reasonable time frame) the first step in the screening includes review of the alternatives using more broadly described measures intended to determine whether an alternative has a fatal flaw. A fatal flow generally falls into one of the following categories:

- The alternative ultimately does not address the issue intended or another issue.
- The concept being evaluated results in a substantial impact on the adjacent surroundings (either built or natural) that cannot be reasonably mitigated.
- The estimated cost of a concept exceeds the transportation improvement budget estimate for the metropolitan area.
- The concept cannot be reasonably constructed using current engineering standards or through allowing reasonable exceptions to the standards.

It should be noted that those alternatives maintained following the *initial screening* do not necessarily reflect the set of concepts that the consulting team believes should be included in the recommended long range transportation plan. Those alternatives maintained through the initial screening will next be reviewed in greater detail to establish whether the concept meets the transportation goals and could reasonably be funded over the planning period. Many of the concepts/ideas that are maintained through the initial screening could very well be eliminated, or set aside, through completion of the second level of the screening analysis. The recommended plan will not be identified until after the second level of analysis, as illustrated in the figure below.



ALTERNATIVES ANALYSIS SUMMARY

Documentation of the alternatives has been organized based on each of the corridors that require attention based on current or forecasted congestion levels, observed system deficiencies or issues identified through the study involvement process. The alternatives have been evaluated relative to a subset of the measures of effectiveness universe developed earlier in the study process. Only those measures that that would allow reviewers to reasonably determine a difference between the alternatives were used. For example, very few of the roadway alternatives would like result in a mode split / shift (i.e., shift in percentage of persons using transit or bicycling versus autos). Therefore the measures addressing mode split / shift were not used in the initial review. Those measures may be used in the second phase of the assessment. The measures of effectiveness used in the initial assessment were:

- Impacts to Adjacent Land Uses: A general review of the alternatives was completed through field review and analysis of the routes using aerial photography and topography mapping. The number of residences, commercial buildings or acres of park/agricultural land were not (and will not be) quantified for each of the concepts.
- Potential safety effects. The potential for an alternative to result in a reduction (or an increase) in crash rate was reviewed. Estimates of the level of reduction (or increase) were not developed and are not warranted for this assessment.
- Traffic volumes or operations effects. The potential for an alternative to result in shifting volumes to another corridor or for added capacity to effect traffic operations / delays.
- Cost. Costs were categorized as Low, Moderate or High.
- Potential for the alternative to reduce/eliminate congestion in the target corridor. Comparing the forecasted corridor traffic after implementation with the post improvement capacity developed this determination.
- Constructability. While it may be ***possible*** to design an improvement concept for each focus area, the bigger question is at what cost. The cost may be measured based on impacts to the adjacent environment or the dollar costs associated with earth movement, concrete and steel or right-of-way relative to the positive benefits associated with the improvement.

The alternatives reviewed in the initial phase of the screening are displayed in Figures 2 and 3 (there are no substantive differences in the types of projects in each figure; due to the large number of alternatives reviewed, two separate figures were required to show them all). Most of the alternatives that added significant capacity or assumed new routes were incorporated into the regional travel model and new model assignments were created. The potential traffic impacts associated with the concept were quantified through comparing the alternative assignments to the 2035 base condition assignments.

SUMMARY OF THE ANALYSIS BY EVALUATION PERSPECTIVE

The preliminary results of the initial screening are provided in Table 1. We have attempted to provide as much of a description as is reasonable in this format. As part of the May 9 workshop, a brief summary of each concept tested in the screening will be provided. Any questions required to provide additional clarity can be asked at that time, or prior to the meeting if desired. The table can be described as a "work in progress", as there are some pieces of information that we still need to collect. Additionally, much of the information will be filled in / adjusted based on the discussions we have at the May 9 workshop.

In the summary table, the benefits and impacts of the alternatives have been summarized from the social, engineering and environmental perspectives. A brief description is provided below:

- Social: Included in this category are:
  - What is the extent of impact to residential and commercial/industrial properties?

  - What is the extent of impacts to parks and schools?
  - How does the alternative support the anticipated development plan/concept?
  - How does the concept support/impact on-going redevelopment plans?
- Engineering: Included in this category are:
  - Does the idea/concept address capacity issues identified for the current and /or future conditions?
  - Does the concept/idea address safety issues identified?
  - How does the idea/concept fit in to the physical constraints of the adjacent built and natural environment and can the concept reasonably be constructed within that environment?
- Environmental: Included in this category area:
  - Is there the potential for significant impacts to the physical natural and/or built environment associated with implementation of the idea/concept.

The table is divided into the following columns:

- Column 1: Contains a description of the issue to be addressed and a description of the various concepts identified to address the issue. Each of the concepts is numbered (unique numbers for each issue) and key details of the concept description are included below the numbered concept title.
- Column 2: Summary of the potential social perspective impacts/benefits.
- Column 3: Summary of the potential engineering perspective impacts/benefits.
- Column 4: Summary of the potential environmental perspective impacts/benefits.
- Column 5: Cost category estimate.
- Column 6: Preliminary recommendation as to maintain or eliminate the concept from further study in the second level of the screening analysis. This column will be filled in at the May 9 meeting / workshop, where the group will discuss each alternative and determine the alternative's status.

ACTION REQUESTED

The May 9 meeting will be dedicated to reviewing the initial screening results for the roadway concepts. The desired product of the meeting will be a list of concepts to be maintained in development of the updated Street and Highway Plan project list, and a list of those ideas/concepts that will be dismissed or set aside. In the mean time, if there are any questions, please contact Bill Troe at (402) 952-2522 or Jason Carbee at (402) 952-2506.

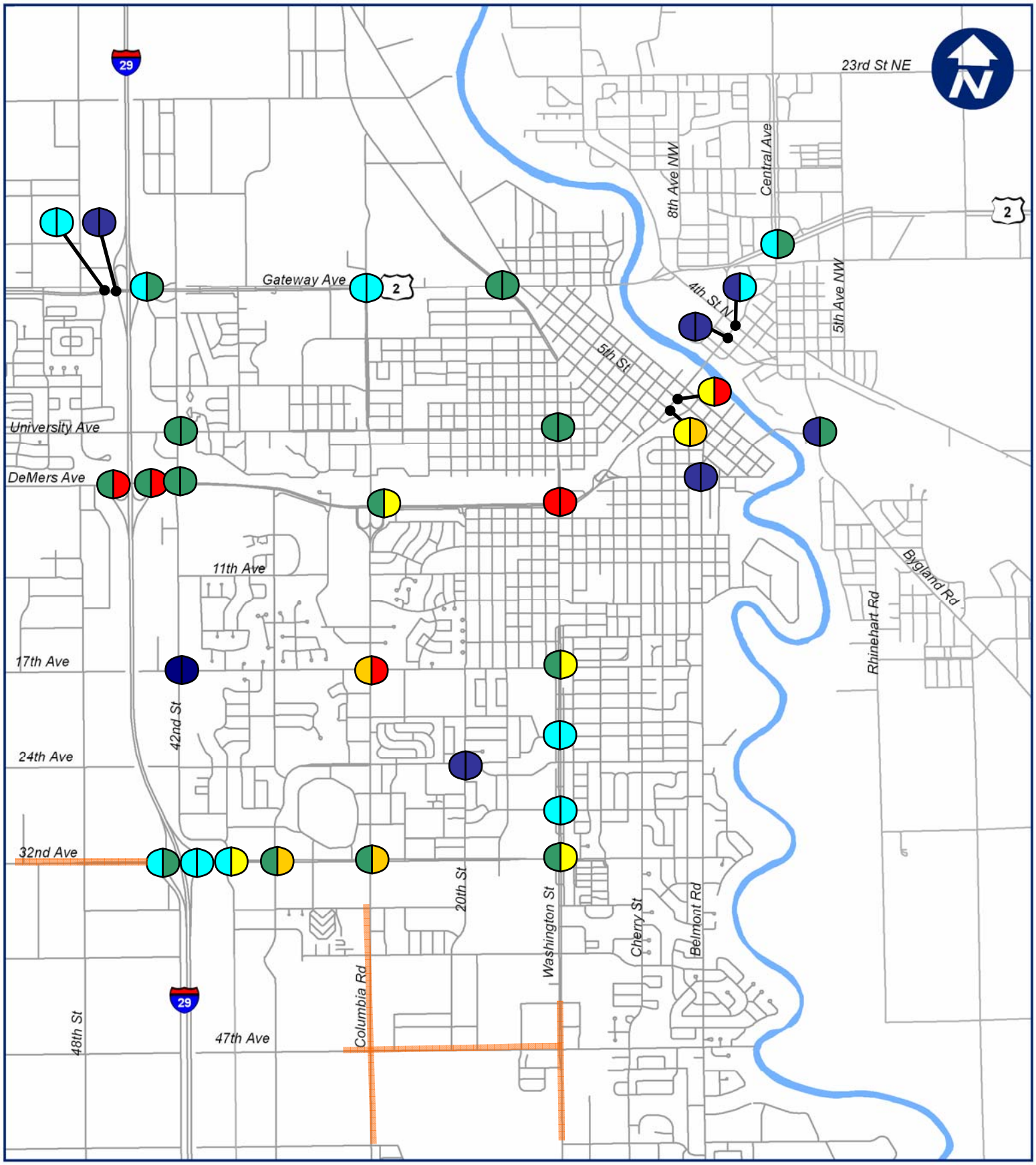


Figure 1: Traffic Operations Analysis Results
Current and Forecasted 2035 Base Conditions

THE FORKS
Long Range Transportation Plan

Preliminary Universe of Roadway Improvements

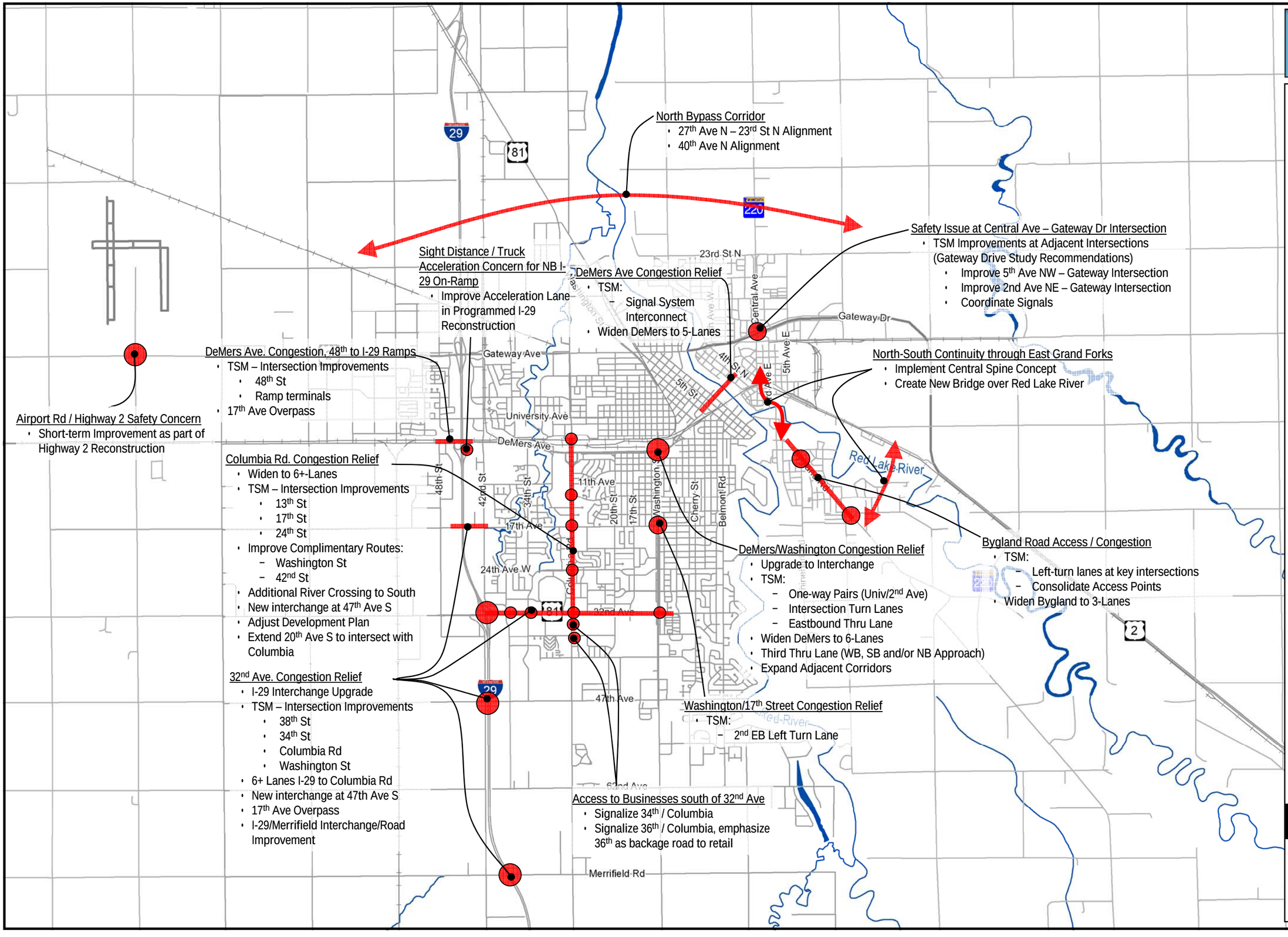


Figure 2

URS

THE FORKS
Long Range Transportation Plan

Preliminary Universe of Roadway Improvements (Continued)

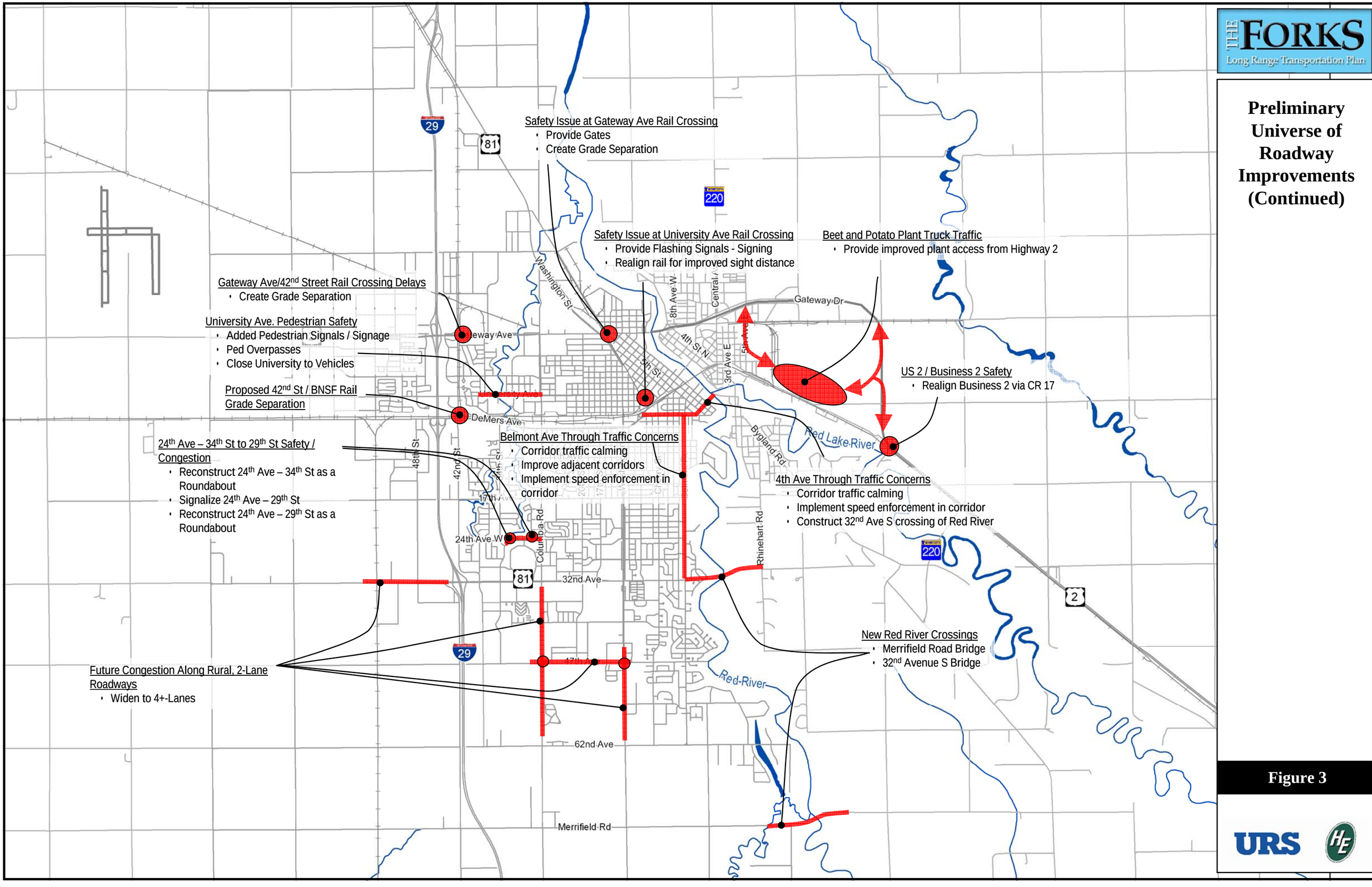


Figure 3

URS

TABLE 1. Initial Alternatives Analysis Summary

URS

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
Congestion Along Columbia Road Corridor					
1. Transportation Systems Management:					
- Extend current southbound right-turn lane at 11th to connect to DeMers ramp.	* Minor right-of-way (R.O.W.) acquisition would be required west of Columbia Rd to maintain sidewalk set-back.	* Provides greater distance for traffic merging from DeMers to SB Columbia.	* No significant impacts anticipated.	Low	
- Add turn lanes at signalized intersections along Columbia Road between 32nd Avenue and DeMers Ramps: * 13th Ave S / Columbia Rd - Add Southbound dual left-turn lanes.	* Minor R.O.W. acquisition would be required to maintain sidewalk set-back.	* Currently 270 southbound left turns in PM peak; projected to be 300 in 2035. Concept provides LOS "C" in 2035 PM peak, compared to LOS "E" in 2035 No Build. * Widen and restripe 13th Avenue to a 4-lane cross-section for approximately 1/4 mile on east of intersection to accommodate the southbound left-turns.	* Potential 4f issue - minor widening of EB 13th St into linear park west of 23rd St.	Low	
* 17th Ave S / Columbia Rd - Add dual left-turn lanes for all approaches.	* Driveways for offices on NW and NE corners converted to right-in-right-out only. Minor R.O.W. acquisition would be required along 17th Ave S to maintain sidewalk set-back. * Wider roadway cross sections increase pedestrian crossing times and concerns for pedestrian safety.	* Widen and restripe 17th Avenue to a 5-lane cross-section for approximately 1/4 mile on each side of intersection to accommodate the northbound and southbound left-turns. * Intersection currently operates at LOS "E" during PM peak. Concept provides LOS "D" in 2035 PM peak, compared to LOS "F" in 2035 No Build .	* Potential 4f issue if ROW is acquired from Apollo Park or Kraft Field in the SE corner of this intersection.	Low to Moderate	
* 24th Ave / Columbia - Add dual left-turn lanes and one right-turn lane for SB approach. Restripe east / west legs to provide 2 through lanes.	* Minor R.O.W. acquisition would be required along 24th Ave east of Columbia Rd in order to maintain sidewalk set-back. * Acquisition of R.O.W. for the SB right-turn lane would impact operations of a business drive-thru located in the NW corner of this intersection. * Wider roadway cross sections increase pedestrian crossing times and concerns for pedestrian safety.	* Widen and restripe 24th Avenue to a 5-lane cross-section for approximately 1/4 mile on each side of intersection to accommodate the southbound left-turns. * Concept would provide LOS "C" in 2035 PM peak, compared to LOS "E" in 2035 No Build . * Convert WB approach to 1 left-turn lane, 2 through lanes.	* No significant impacts anticipated.	Low to Moderate	
- Extend 20th Ave South between Columbia Rd and 25th Street.	* Decreases traffic adjacent to Park and Red River High School at 17th Ave / 25th Street. * Increases traffic along 20th Ave S east of Columbia, currently classified as local street. * Past concerns about baseballs from fields hitting cars on 20th Ave S.	* Provides diversion of neighborhood-generated traffic from 17th Ave, approximately 1,000 vehicles per day (VPD). On its own, does not significantly improve operations at 17th Ave - Columbia Rd. * Maintaining 20th Ave S / Columbia as two-way stop controlled intersection, should minimize concerns about cut-through traffic along 20th Ave.	* No significant impacts anticipated.	Low	

TABLE 1. Initial Alternatives Analysis Summary

URS

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
2. Expansion / Corridor Widening: - Widen Columbia Road to a 7-lane cross section between Demers Ave and 32nd Ave (2030 LRTP Recommendation)	* R.O.W. acquisition would be required along Columbia Rd to maintain sidewalk set-back. R.O.W. impacts will be greater if existing right-turn lanes are maintained with the wider cross section. * Wider roadway cross sections increase pedestrian crossing times and concerns for pedestrian safety.	* Concept provides additional capacity for north/south through movements. This design does not necessarily help heavy left-turn movements at 13th, 17th and 24th Ave. * The wider cross section would require all Columbia Rd left-turn movements to be changed to protected only operations. This could have a negative impact for traffic operations, particularly for the left-turn movements. * On it's own, concept provides LOS "E" at Columbia Rd - 17th Ave due to high delays for left-turning traffic. * Concept attracts 3,000 to 8,000 additional vpd in 2035 to Columbia Rd compared to base scenario.	* Increased traffic volumes closer to homes could result in noise impacts. * Dependent on sidewalk setbacks the ROW impact would be 5-12' for each parcel along this corridor. Parking lot impacts are anticipated for some parcels. * For those intersections where dual left-turn lanes are still required to accommodate the Columbia Rd left-turn volumes the ROW impacts will result in acquisition of parcels.	High	
- Create 47th Ave S Interchange	* RV Park / Campground adjacent to 47th Ave / I-29 would be acquired.	* Provides direct I-29 access to planned residential / commercial growth in south Grand Forks. * Reduces 2035 traffic volumes by 5,000 to 7,000 vpd along Columbia Road north of 32nd Ave. * Reduces 2035 traffic volumes by 2,000 to 9,000 vpd along 32nd Ave west of Columbia Rd.	* Requires Access Modification Request to FHWA (additional study).	Moderate to High	
- Widen 42nd St to a four-lane cross-section between 17th Ave and 32nd Ave (2030 LRTP Recommendation)	* No significant social/R.O.W. impacts anticipated.	* Would divert approximately #,000 vpd from Columbia Road by 2035 (awaiting ATAC model run).	* No significant impacts anticipated.	Moderate	
- Widen Washington St to a six-lane cross-section between DeMers and 32nd Ave	* Significant R.O.W. acquisitions between DeMers and 14th Ave S, as R.O.W. currently ranges from 80 to 88 feet wide along this segment.	* South of Hammerling Ave, shortened distance between Washington and frontage roads would provide less vehicle storage. * Consolidation of access points north of Hammerling may be desirable for safety reasons. * Significant business impacts in corridor likely are a fatal flaw.	* Significant business losses / impacts.	High	
3. Land Development Concept Modification: - Reduce allowable future levels of development along the South Columbia Road travelshed; shift development to travelsheds with more reserve capacity.	* Shifting currently-projected development levels is inconsistent with current Grand Forks Land Use Plan. * Would increase growth in other sectors of the city, likely leading to similar levels of congestion in different corridors.	* Decreased traffic growth / congestion in Columbia Rd corridor would be shifted into other corridors.		N/A	

TABLE 1. Initial Alternatives Analysis Summary

URS

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
Congestion at DeMers Avenue - Washington Street Intersection					
1. Transportation Systems Management: - Add eastbound through lane (2030 LRTP Recommendation)	* Current sidewalk and trail set-back, this concept would require additional (approx. 16') strip of R.O.W. acquisition. * Concept impacts operations at Fire Station on Northeast corner; reducing separation between the garage bays and street to approximately 40 feet. Firetrucks parked on driveway would block the trail. * Wider roadway cross sections increase pedestrian crossing times and concerns for pedestrian safety.	* Peak hour traffic is higher today (2006) than volumes observed in 2002 for last plan update. * Intersection currently operates at LOS "F" during PM peak hour. Improvement provides additional eastbound capacity, requiring less green-time for eastbound movement, allowing more westbound left-turn green time. * Based on latest PM peak hour forecasts, it is anticipated that this improvement would reduce delays, but would still be a LOS "F" by 2035.	* Minor acquisition of railroad property would be required. Property is adjacent to BNSF yard, roundhouse and turntable - possible contamination (fuel / oil) on property? * No business acquisition would be required. Current access points could be maintained.	Moderate	
- Add 3rd lane for both the eastbound and westbound approaches	* Would impact operations at Fire Station on Northeast corner; reducing separation between the garage bays and street to approximately 40 feet. * Wider roadway cross sections increase pedestrian crossing times and concerns for pedestrian safety.	* Intersection currently operates at LOS "F" during PM peak hour. Improvement provides additional eastbound / westbound capacity, requiring less green-time for eastbound movement, allowing more westbound left-turn green time. * On its own, this improvement would reduce delays, but would still be a LOS "F" by 2035.	* Acquisition of railroad property would be required. Property is adjacent to BNSF yard, roundhouse and turntable - possible contamination (fuel / oil) on property? * No business acquisition would be required. Current access points could be maintained.	Moderate	
- Add 3rd lane for southbound traffic	* To maintain sidewalk as currently configured, would require approximately 18' strip of R.O.W. acquisition ending at 10th Ave S. * Likely two businesses would need to be acquired, significant parking / traffic circulation impacts at four other commercial properties west of Washington St corridor.	* Currently operates at LOS "F" during PM peak hour. Concept provides additional southbound capacity, requiring less through green-time. * May require moving retaining wall north of DeMers to add through lane while maintaining SB right turn lane. * On its own, concept reduces delays to LOS "E" by 2035.	* A significant number of properties along Washington St to the south of the intersection would need to be acquired. * Acquisition of gas station in SW corner of the interchange would require additional environmental investigation.	High	
- Add 3rd lane for northbound traffic	* Requires widening for 1/4 mile north of Washington; likely to University Ave. * Extensive R.O.W. impacts north of BNSF line	* Currently operates at LOS "F" during PM peak hour. Concept provides additional northbound capacity, requiring less green-time for this movement. * Would require widening of Washington St underpass of BNSF rail line. High cost is likely a fatal flaw. * On its own, concept reduces delays to LOS "E" by 2035.	* Acquisition of railroad property would be required. Property is adjacent to BNSF yard, roundhouse and turntable - possible contamination (fuel / oil) on property?	High	

TABLE 1. Initial Alternatives Analysis Summary

URS

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
2. Interchange Concepts - Reconstruct as a single point urban interchange (SPUI)	* Concept requires relocating the Fire Station in the Northeast corner of the interchange. How would this affect fire service for the community? * Loss of Washington St access for some businesses south of Demers Ave. * Significant traffic impacts due to delays / detours during interchange construction.	* Washington St would be lowered; several access points and at least one street (7th Ave) to the south will need to be closed. * Potential drainage issues with a depressed Washington St. * Westbound off-ramp would be about 200' downstream from the 4th Ave westbound on-ramp: very short weaving distance. * With dual left-turns on all approaches, and a dual eastbound right-turn lane SPUI intersection would operate at LOS "C" in 2035. Through traffic on DeMers would be grade-separated and have no delays.	* Railroad property acquisition would be required adjacent to BNSF yard, roundhouse and turntable - possible contamination (fuel / oil) on property? * At least 3-4 properties would be acquired, with other acquisitions along Washington St south of Demers Ave due to the loss of access. * Acquisition of gas station in SW corner of the interchange would require additional environmental investigation.	High	
- Reconstruct as a split-diamond interchange with 4th Ave S	* Concept affects operations into/out of Fire Station in the Northeast quadrant; likely requires relocating facility. * Loss of access to both Washington Street and DeMers for some businesses south of Demers Ave. * Significant traffic impacts due to delays / detours during interchange construction.	* Eastbound off-ramp and westbound on-ramp at DeMers/Washington; eastbound on-ramp and westbound off-ramp at 4th Ave S/Washington; a collector / distributor (C/D) road would be provided between each. * Eliminates short weave issue between Washington and 4th Ave associated with SPUI. * Washington St - C/D road intersections would operate at LOS "B" and "C" in 2035. Through traffic on DeMers would be grade-separated and have no delays.	* Reduced / limited property acquisition at BNSF yard compared to SPUI. * Potential 4f issue with park south of current 4th Ave S - DeMers interchange. * May require acquisition of gas station in SW corner of the interchange.	High	
3. Expand / Improve Adjacent Corridors - Convert University Ave / 2nd Ave N to a one-way pair between Washington St and downtown	* Concept increases traffic volumes (and potentially speeds) along University and 2nd Ave N. * Reduced access to residences -- from the opposite direction, traffic would have to "go around the block" to get home.	* Concept provides an improved alternate corridor connecting north downtown to Washington Street. * Would reduce WB left-turns in PM peak at Washington - DeMers, improving operations. Added WB left-turns at Washington - University may require dual WB left-turn lanes. * Would increase SB through traffic in PM peak - might need to consider adding third SB through lane on Washington St.	* Increased traffic impacts to neighborhood along University / 2nd Ave.	Low	
- Improve S 20th St between DeMers Ave and 32nd Ave	* Increases traffic volumes (and potentially speeds) along 20th St adjacent to approximately 150 homes, several apartment buildings, an elementary school and two parks/rec facilities.	* Concept adds left-turn lanes and signals (where warranted), affecting on-street parking at intersections. Given 20th St driveway density, consider removing on-street parking and striping a continuous center left-turn lane. * Would reduce WB left-turns in PM peak at Washington - DeMers, improving operations. Added WB left-turns at DeMers - 20th (currently 220 WB lefts in PM peak) would likely require dual WB left-turn lanes. * S 20th St currently designated a collector street; improvements would likely make 20th St function more as a minor arterial. * R.O.W. north of 17th Ave - 80'; south of 17th Ave - 90'.	* Increased traffic impacts to neighborhoods along S 20th St.	Low to Moderate	

TABLE 1. Initial Alternatives Analysis Summary

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
Congestion Along 32nd Avenue S					
1. Transportation Systems Management: - Add dual left-turn lanes for WB approach of 32nd Ave at 34th St.	* Minor R.O.W. acquisition would be required along 34th St in order to maintain sidewalk set-back. * Wider roadway cross sections increase pedestrian crossing times and concerns for pedestrian safety.	* Concept provides additional capacity for westbound left-turn movement. Allows greater green-time for eastbound through movement. * Requires widening of 34th St south to accommodate the WB dual left-turn lane. * Concept improves intersection to LOS "D" in 2035 compared to LOS "E" in 2035 No Build. * Protected left-turn phases should improve safety at the intersection, which has a higher-than-expected crash rate.	* No significant impacts anticipated.	Low to Moderate	
- Add dual left-turn lanes for NB and WB approaches of 32nd Ave at Columbia Rd.	* No significant impacts anticipated	* Concept provides additional capacity for these left-turn movements. Allows greater green-time for through movements. * On its own, this concept would provide LOS "D" in 2035 PM peak, compared to LOS "E" in 2035 No Build. * Current center medians are wide enough to accommodate these additional left-turn lanes.	* No significant impacts anticipated.	Low	
- Add dual left-turn lanes for NB and SB approaches of 32nd Ave at 38th St.	* Minor R.O.W. required.	* Concept provides marginally improved traffic operations, still at LOS "D". * This improvement may not be necessary with realignment / extension of 42nd St.		Low	
- Add additional eastbound and westbound through lanes at the intersection of 32nd Ave and Washington St.	* Minor R.O.W. impacts along Washington St in residential area.	* With signal timing adjustments, predicted 2035 No-Build average delay is 37 seconds, within two seconds of threshold of LOS "C"/LOS "D". This concept would improve average delay to 34 seconds. * R.O.W. east of Washington - 80'; west of Washington - 90'. * Minimal improvement in delay, relatively significant cost for improvement.	* Impact to cemetery or business in SW corner.	Moderate	
2. Interchange Modification: - Add loop ramps in the NW and SE quadrants, relocate the NB on-ramp in the NE quadrant of the I-29 / 32nd Ave interchange and realign 42nd St (2030 LRTP Recommendation)	* No significant impacts anticipated	* Loop ramps remove left-turn movements from 32nd Ave onto I-29, eliminating their traffic signal phases, allowing more green time for remaining movements. * The realignment of 42nd St with the I-29 NB off-ramp allows for direct access to the 42nd St corridor and removes some weaving traffic from the 32nd Ave corridor. * The ramp junction with I-29 for the NB on-ramp should be moved further to the north in order to create greater separation between the consecutive NB on-ramps (AASHTO recommends a minimum of 1000'). * The lower design speed for the loop ramp in the SE quadrant could be a potential safety concern.	* Minor ROW acquisitions required for the realignments of 42nd St and the SB off-ramp. * The realigned NB off-ramp would be located closer to the hotel in that quadrant. Potential noise and vibration concerns? * Requires Access Modification Request to FHWA (additional study).	Moderate to High	

TABLE 1. Initial Alternatives Analysis Summary

URS

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
- I-29 / 32nd Ave interchange NB on-ramp relocated to 42nd St.	* This is a more urban type design that some drivers may find confusing. With proper signing the new on-ramp would not be difficult to use. * The proposed ramp offers additional, direct NB I-29 access to the Alerus Center.	* The configuration would require vehicles accessing the ramp from 32nd Ave to traverse an additional intersection. * This configuration creates greater spacing between the consecutive northbound on-ramps.	* Acquisition of ROW to accommodate the new ramp. * Requires Access Modification Request to FHWA (additional study).	Moderate to High	
3. System Expansion / Widening: - Widen 32nd Ave to a 7-lane cross section between I-29 and Columbia Rd or Washington St (2030 LRTP Recommendation)	* Potential loss of parking for the business in the southwest corner of 32nd Ave and Washington St. * Wider roadway cross sections increase pedestrian crossing times and concerns for pedestrian safety.	* The wider cross section would require all 32nd Ave left-turn movements to be changed to protected only operations. This could have a negative impact for traffic operations, particularly for the left-turn movements. * Concept provides LOS "D" at 32nd - Columbia Intersection in 2035 PM peak, compared to LOS "E" in 2035 No Build.	* No ROW impacts throughout most of corridor. At Washington St, requires ROW takes from either the cemetery on the north side of 32nd Ave or parking for a business on the south side. * Impact to cemetery or business in SW corner of 32nd Ave - Washington St.	High	
- Create 47th Ave S Interchange	* Impact to RV Park / Campground adjacent to 47th Ave / I-29.	* Provides direct I-29 access to planned residential / commercial growth in south Grand Forks. * Reduces 2035 traffic volumes by 5,000 to 7,000 vpd along Columbia Road north of 32nd Ave. * Reduces 2035 traffic volumes by 2,000 to 9,000 vpd along 32nd Ave west of Columbia Rd.	* Requires Access Modification Request to FHWA (additional study).	Moderate to High	
- Create Merrifield Rd Interchange	* Would remove some truck traffic from urban streets of Grand Forks and East Grand Forks	* Complements planned Merrifield Rd Bridge providing a truck relief route, with a more direct I-29 - US 2 connection. * Interchange reduces 2035 traffic volumes by 2,000 vpd along Columbia Road north of 32nd Ave. * Reduces 2035 traffic volumes by 2,000 to 3,000 vpd along 32nd Ave west of Columbia Rd.	* Requires Access Modification Request to FHWA (additional study).	Moderate to High	
- Complete 17th Ave South Connection between 48th Street and 42nd Street with overpass of I-29 (2030 LRTP Recommendation)	* Limited property acquisition. * Improved access to S 48th St Business Park.	* Would divert approximately 2,000 to 3,000 vpd from 32nd Ave west of Columbia Rd.	* Coulee south of 17th Ave alignment.	Moderate to High	
DeMers Avenue Congestion, 5th Street (GF) to 4th Street NW (EGF)					
1. Transportation Systems Management: - Implement CBD Traffic Study Recommendations (Signal Removals and Signal System Interconnect)		* Remove signals at: 5th St / Bruce (GF), 2nd St / DeMers (GF), 2nd St / DeMers (EGF), 4th St / 3rd Ave (EGF) * Convert 3rd St / DeMers (EGF) to signal * Interconnect DeMers Ave and 5th St (GF) signal systems * Study found acceptable long-term operations with similar traffic levels.	* No significant impacts anticipated.	Low to Moderate	
2. Corridor Widening: - Widen DeMers Avenue to 5-lanes from 5th Street (GF) to 4th Street (EGF)	* R.O.W. through each downtown is 80 feet. * Significant property impacts through corridor. * Would require removal of on-street parking.	* Would require wider Sorlie Bridge. * Likely more capacity than required through 2035.	* A widened river crossing would require environmental documentation and agency review for approval.	High	

TABLE 1. Initial Alternatives Analysis Summary

URS

Issue / Improvement Concept / Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
Congestion at 17th Avenue - Washington Street Intersection					
1. Transportation Systems Management: - Add eastbound dual left-turn lanes	* Widen to south; approximately 12' of R.O.W. to maintain sidewalk setback. * Concept impacts parking for tire store on SW corner of intersection.	* Predicted 2035 No-Build delay is 36 seconds, within one second of LOS "C"/LOS "D" threshold of 35 seconds. * Projected to be 260 eastbound left turns during PM peak in 2035. Concept provides LOS "C" during PM peak for 2035.	* No significant impacts anticipated.	Low to Moderate	
24th Avenue - 34th Street and 29th Street Congestion and Safety					
1. Transportation Systems Management: - Reconstruct 24th Ave - 34th Street intersection as a single lane roundabout	* No significant impacts anticipated * A roundabout would be considered new for region and gaining acceptance can be more difficult.	* A roundabout intersection design results in lower entry speeds into the intersection, reducing crash severity. A roundabout can also viewed as traffic calming for the 34th St / 24th Ave corridor. * A roundabout design reduces the number of directions of traffic a motorist needs to view when looking for a gap to enter the intersection.	* Acquisition of ROW to the east and north of the current intersection in order to accommodate the new roundabout. * Property to the north of the current intersection is part of Lion's Park.	Low to Moderate	
- Provide a traffic signal for the 29th Street intersection	* No significant impacts anticipated * A traffic signal must be warranted before installation.	* A traffic signal should help alleviate many of angle crashes experienced at this intersection. * Resulting signalized intersection spacing between this intersection and the Columbia Rd / 24th Ave intersection is approximately 500'.	* No significant impacts anticipated.	Low	
- Reconstruct 29th Street intersection as a single lane roundabout	* The roundabout would be built to the west of the existing intersection to avoid impacting businesses in the NE and SE quadrants of the intersection. * A roundabout would be considered new for region and gaining acceptance can be more difficult.	* A roundabout intersection design results in lower entry speeds into the intersection and this reduces the severity of crashes. A roundabout can also viewed as traffic calming for the 34th St / 24th Ave corridor. * A roundabout intersection design reduces the number of directions of traffic a motorist needs to view when looking for a gap to enter the intersection. * Eastbound queues from the Columbia Rd / 24th Ave intersection could impact roundabout operations. * Long-term traffic operations may require a 2-lane roundabout.	* Acquisition of ROW in the NW and SW quadrants of the current intersection in order to accommodate the new roundabout. * A drainageway located to the west and south of this intersection would have to be enclosed to accommodate the roundabout design. * Property to the NW of the current intersection is part of Lion's Park.	Moderate	
Bygland Road Congestion / Access					
1. Transportation Systems Management: - Add left-turn lanes at key intersections.	* Limited impacts. * Bygland R.O.W. is approximately 150' wide south of 6th Street, 100' wide north of 6th Street.	* Reduces peak hour delays by separating the majority of left-turning traffic on Bygland from through traffic.	* No significant impacts anticipated.	Low	
- Widen to a 3-lane cross-section	* Maintains access to all drives / streets.	* Reduces peak hour delays by separating all left-turning traffic on Bygland from through traffic.	* No significant impacts anticipated.	Low to Moderate	

TABLE 1. Initial Alternatives Analysis Summary

URS

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
- Consolidate minor street accesses along Bygland.	* Would increase traffic adjacent to some residences, reduce traffic adjacent to other residences. * Reducing access point density typically improves corridor safety.	* Focuses traffic turning onto Bygland to a smaller set of intersections. * Signals or roundabouts may be warranted at some of the remaining intersections, allowing easier access onto Bygland.	* Minor increase in out-of-direction travel.	Low	
2. Corridor Widening: - Widen Bygland Rd to 5-lanes from 1st St SE to Rhinehart Rd	* Limited impacts - Current R.O.W. could accommodate 5-lane cross-section with sidewalks. * Current Levee Opening is about 80' - impact on flood gate operations?	* TSM section likely provides sufficient capacity through planning horizon.	* No significant impacts anticipated.	Moderate to High	
North-South Continuity through East Grand Forks					
1. System Expansion - Implement Central Spine Concept, Option 4. Provide a 2nd Ave NE grade separation with BNSF mainline	* Limited social impacts compared to other grade separation options. * Public input during "Grade Separation Study" was decidedly opposed to R.O.W. acquisitions.	* Provides reliable corridor connecting north and south East Grand Forks by eliminating traffic delays associated with BNSF * 9 Trains a day	* Concept is consistent with public option found in Grade Separation Study's public outreach program - at that time there was opposition to concepts that involved residential property acquisitions.	High	
- Create new corridor including Red Lake River bridge connecting Bygland Rd to Business Highway 2.	* Potential impacts to houses / schools south of river due to new corridor alignment. * Potential impacts to industrial / commercial businesses adjacent to Business Highway 2.	* Murray Bridge and MN 220 Bridge are 3 miles apart. * Could potentially divert some traffic from Bygland Rd north of Middle School.	* A new river crossing would require environmental documentation and agency review for approval.	High	
DeMers Avenue Congestion, 48th Street to beginning of 4-Lane Section					
1. Transportation Systems Management (48th Street Study): - Improve turn radii at 48th / DeMers and SB I-29 / DeMers - Add traffic signals at 48th / DeMers and SB I-29 / DeMers when warranted	* Improves heavy truck access to industrial park.	* Provides sufficient operations / access into industrial park. Without improvements, unsignalized traffic operations degrade to LOS "F" by 2035.	* No significant impacts anticipated.	Low	
2. System Expansion - Complete 17th Ave South Connection between 48th Street and 42nd Street with overpass of I-29 (2030 LRTP Recommendation)	* Limited property acquisition.	* Would divert approximately 2,000 to 3,000 vpd from DeMers Ave west of 42nd St.	* Coulee south of 17th Ave alignment.	Moderate	

TABLE 1. Initial Alternatives Analysis Summary

Issue / Improvement Concept / Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
University Avenue corridor through UND Campus					
1. Additional pedestrian signals / advanced warning signage in corridor	* Signals provide gaps for pedestrians during high traffic volume periods	* Provides protected crossings for pedestrians. * Would add delays to traffic flow through University Avenue Corridor.	* No significant impacts anticipated.	Low	
2. Pedestrian overpass(es) in key location(s)	* Does not appear to be tunnel connections across University Ave	* Relatively easy for pedestrians to cross University Ave today. Effort of climbing ramp / stairs would likely discourage many pedestrians from using overpass. * Would not meet typical pedestrian crossing warrants.	* No significant impacts anticipated.	Moderate	
3. Close University Ave to through traffic		* Currently carries between 8,300 and 9,300 vpd. * 2035 Forecast: 9,000 vpd to 12,000 vpd. * Would divert approximately 4,000 vpd to DeMers, 4,000 vpd to 6th Ave N, 2,000 vpd to Gateway Dr.	* Increase in regional VMT.	Low	
Access to Businesses south of 32nd Avenue to / from Columbia Road					
1. New Traffic Signals - Signalize 34th Ave S - Columbia Rd intersection	* Benefits access into / out of retail area.	* Signal spacing not consistent with planning guidance for Columbia Rd - 1/2 mile signal spacing. * Dense signal spacing has negative impact on Columbia Rd traffic flow.	* No significant impacts anticipated.	Low	
- Signalize 36th Ave S - Columbia Rd intersection	* Improved 36th Ave provides backage roadway - benefits access into / out of retail area.	* Improved signal spacing at 1/4 mile, but not consistent with guidance for Columbia Rd - 1/2 mile signal spacing.	* No significant impacts anticipated.	Low	
Belmont Avenue Through Traffic Concerns					
1. Introduce traffic calming measures in corridor	* Intent would be to reduce average speeds closer to posted speed of 25 mph. * Appropriate calming program could reduce average travel speeds in corridor.	* Belmont is a minor arterial: it's function includes serving through traffic. * Pavement width is already relatively narrow - 30' wide for two travel lanes and one lane of on-street parking.	* No significant impacts anticipated.	Low to Moderate	
2. Improve adjacent corridor(s) to relieve traffic on Belmont	* Reduce traffic volumes on Belmont. * Would increase traffic volumes on improved street(s).	* Difficult to identify alternate corridor: - Chestnut St (1 block west) is continuous corridor, but classified as a local street - Cherry Street is a collector, not intended for through traffic. - Washington Street is 3/4 mile west, and has peak hour delays at DeMers intersection.	* No significant impacts anticipated.	Moderate to High	
3. Implement speed enforcement program in corridor	* An aggressive program will likely provide at minimum a temporary reduction in corridor speeds.	* Documenting speeds is the first step in establishing need for corridor traffic calming program.	* No significant impacts anticipated.		

TABLE 1. Initial Alternatives Analysis Summary

URS

Issue / Improvement Concept / Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
4th Avenue South Through Traffic Concerns					
1. Transportation System Management - Introduce traffic calming measures in corridor	* Intent would be to reduce average speeds closer to posted speed of 25 mph. * Appropriate calming program could reduce average travel speeds in corridor.	* 4th Ave S is a minor arterial: it's function includes serving through traffic. * East of Cherry St, pavement width is already relatively narrow - 30' wide for two travel lanes and one lane of on-street parking.	* No significant impacts anticipated.	Low to Moderate	
- Implement speed enforcement program in corridor	* An aggressive program will likely provide at minimum a temporary reduction in corridor speeds.	* Documenting speeds is the first step in establishing need for corridor traffic calming program.	* No significant impacts anticipated.		
2. System Expansion - Construct 32nd Ave S crossing of Red River (2030 LRTP Recommendation)	* Would reduce traffic adjacent to 4th Ave S homes, while increasing traffic adjacent to 32nd Ave S homes.	* Projected to divert approximately 2,000 to 5,000 vpd from 4th Ave S corridor by 2035. * Current plan is to construct 32nd Ave S bridge after completion of the Merrifield Rd bridge.	* A new river crossing would require environmental documentation and agency review for approval.	High	
Safety Issue at Gateway Avenue - 5th Street Intersection and Rail Crossing					
1. Provide additional lane striping and gates warning stopped vehicles to stay off of tracks	* Could reduce potential for auto-train crashes at this crossing.	* 5th St - Gateway intersection and rail crossing are less than 100' apart. * Rail line carries 3 trains / day. 2005 ADT: 24,700 vpd * Current cantilever lights and additional flashing sign provide significant warning to autos of approaching trains. * Average train operating speed is less than 10 mph.	* No significant impacts anticipated.	Low	
2. Provide Grade Separation of Gateway / BNSF Mill Spur Line	* Eliminates delays and safety issues associated with at-grade crossing * Loss of access to adjacent businesses	* Would require grade separation of 5th St and Gateway in addition to rail line, due to close spacing of 5th St and rail line. * No reported crashes over 2003 to 2005 analysis period	* Business acquisitions likely.	High	
Safety Issue at University Ave - BNSF Rail Crossing west of 9th St					
1. Provide flashing signals as advance train crossing warning	* Flashing rail signals could provide a more safe rail crossing to vehicular and pedestrian traffic.	* Rail line carries 3 trains / day. 2005 ADT: 5,000 vpd * No reported crashes over 2003 to 2005 analysis period * Average train operating speed is less than 10 mph.	* No significant impacts anticipated.	Low	
2. Improve sight distance by realigning rail line to run more perpendicular to University Ave	* Would require acquisition of new R.O.W., likely several residences.	* BNSF Right-of-way approximately 100' * Any significant rail re-alignment (if possible) would be outside of existing BNSF R.O.W. * High cost likely a fatal flaw.	* No significant impacts anticipated.	High	

TABLE 1. Initial Alternatives Analysis Summary

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
Delays Associated with Gateway Ave Rail Crossing (east of 42nd St)					
1. Provide Grade Separation of Gateway / BNSF Glasston Line	* Eliminates delays and safety issues associated with at-grade crossing * Trains reportedly stop on tracks. * Potential need to find new access point for frontage road east of tracks.	* Car-train injury crash in March 2003 * 2 Trains per Day. 2005 ADT: 18,800 vpd * Average train operating speed is less than 25 mph. * DeMers Ave would be alternate route for Gateway traffic during delay. * Requires 42nd St - Gateway grade separation of in addition to rail line due to close rail - 42nd St spacing.	* No significant impacts anticipated.	High	
Truck Traffic Related to East Grand Forks Potato and Sugar Beet Plants					
1. Improve access to plants from Highway 2.	* Would reduce heavy truck traffic on residential streets including 5th Ave E.	* 5th Street has recently been improved to handle high truck volumes. * Alternatives that orient truck traffic to east of plants would require out-of-direction travel for many trucks. * Requires compliance by trucks accessing plants. * Truck restrictions not allowed on MnDOT - funded roads. * Delivery operations at SW corner of property, away from US 2	* No significant impacts anticipated.	Low to Moderate	
Safety Issue at US 2 / Business 2 Intersection					
1. Realign Business Highway 2 - Use current CR 17 alignment and close current Business 2 / US intersection	* Creates minor out-of-direction travel for business located along Business Hwy 2 southeast of current CR-17/Business 2 intersection.	* CR 17 intersection, 1/2 mile north of current Business 2 intersection, would provide better sight distance due to 90 degree intersection. * Provides better sight distance, safer overall intersection. * Issues with roadway jurisdiction.	* Reduction in pass-by traffic for businesses, likely minimal impact	Low to Moderate	
Future Congestion Along Current Rural, Two-Lane Roadways					
1. When development occurs, widen rural, two-lane roadways to urban, 4-lane divided cross-sections - 32nd Ave west of I-29, Columbia Rd south of 32nd Ave, Washington St south of 47th Ave, 47th Ave South between Columbia Rd and Washington St.	* Provide sufficient capacity to 25+ year growth areas.	* Provides consistent design with adjacent urbanized roadway segments * Provides acceptable traffic operations through 2035.		Moderate to High	
Safety Issue at Gateway Drive / Central Avenue Intersection					
1. Implement Gateway Drive Access Management Study Recommendations	* Diverts locally-generated traffic to new access points at 5th Ave NW and 2nd Ave NE.	* New signal-controlled intersections would be coordinated with Central Ave intersection. * On its own, 5th Ave NW intersection diverts 3,000 vpd from north leg of Central Ave - Gateway Dr intersection in 2035. * Intersection will have acceptable traffic operations through 2035.	* No significant impacts anticipated.	Moderate	

TABLE 1. Initial Alternatives Analysis Summary

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
New Red River Crossings					
1. Construct Merrifield Road crossing of Red River (2030 LRTP Recommendation)	* Offers south bypass route for trucks, connecting I-29 south of Grand Forks to US 2 south of East Grand Forks. * Improves general system continuity between southern metro area, high growth sector.	* Preliminary forecasted to attract between 3,000 and 5,000 vpd in 2035. * In conjunction wth Merrifield Road interchange, provides some diversion of traffic from 32nd Ave S congestion.	* Additional environment documentation / agency review required. * Tie-in Cole Creek diversion provides flood protection benefits.	High	
2. Construct 32nd Ave S crossing of Red River (2030 LRTP Recommendation)	* Would reduce traffic adjacent to 4th Ave S homes, while increasing traffic adjacent to 32nd Ave S homes. * Diverts traffic from Point Bridge.	* Projected to divert approximately 2,000 to 5,000 vpd from 4th Ave S corridor by 2035. * Preliminarily Projected to attract approximately 4,000 to 6,000 vpd to 32nd Ave S between Washington and Belmont.. * Current plan is to construct 32nd Ave S bridge after completion of the Merrifield Rd bridge. * Improves system continuity by connecting south Grand Forks and south East Grand Forks; both high-growth areas through planning horizon.	* A new river crossing would require environmental documentation and agency review for approval.	High	
DeMers / 42nd Street Grade Separation					
1. Grade Separate 42nd Street from BNSF Rail Line - Maintain access between DeMers and 42nd via Interchange	* Improves reliability of access to UND campus, travel along 42nd St. * Some R.O.W. impacts with University property.	* Eliminates train delays for 42nd Street traffic.		High	
North Bypass of Metro Area					
1. Create East-West Bypass Corridor on North Fringe of Grand Forks - East Grand Forks Urban Area	* No anticipated acquisitions of houses or businesses. * Represents longer travel distances, which can be difficult to encourage out-of-direction travel.	* Provides direct bypass route for traffic to/from I-29 north of GF to US 2 east of EGF and US 2 through traffic. * Diverts approximately #,000 vpd from Gateway Corridor (awaiting ATAC model run). * Concept does not directly address any identified capacity deficiencies.	* Requires conversion of agricultural land. * 27th Ave N / 23rd St N alignment would impact EGF golf course. * A new river crossing would require environmental documentation and agency review for approval.	Very High	
Airport Road / Highway 2 Safety Concerns					
1. Current Highway 2 Reconstruction Project should address this.	* Issue raised during involvement process.	* Currently a signalized with flashing advanced warning to traffic on Highway 2.	* No significant impacts anticipated.	Low	
Sight-Distance / Truck Acceleration Concern for NB I-29 DeMers On-Ramp					
1. Programmed I-29 Reconstruction Project should address this.	* Issue raised by trucking industry representative during involvement process.	* Increased acceleration lane length should allow increased truck speeds, further distance from crest of hill during merge.	* No significant impacts anticipated.	Low to Moderate	

MEMORANDUM

Bill Troe, AICP
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To: **Earl Haugen**
MPO Technical Advisory Committee

Date: May 31, 2007

Subject: Roadway Improvement Alternatives
Summary and Follow-Up of May 9 Workshop

The purpose of this memorandum is to provide updated documentation of the First Level alternatives analysis screening results, following discussions held at the May 9 TAC workshop. Preliminary screening recommendations are provided on all of the alternatives, even those that did not get fully discussed at the workshop. Thus, it is hoped that each TAC member will take some time over the next week, review the alternatives matrix included in this memorandum and provide any feedback.

In addition to filling in the "Initial Screening Recommendation" column, the alternatives matrix has been updated to include any new improvement concepts that were raised by committee members at the meeting or since the meeting. In addition to new improvement concepts, the matrix includes any additional discussion items that were raised regarding any additional social, engineering or environmental metrics that were not included in the original matrix.

As we discussed in the meeting, this first phase of the alternatives assessment includes:

- Development of the Universe of Alternatives to address:
  - Locations of capacity and / or connectivity deficiencies
  - Locations of safety concerns identified through the analyses and through the public involvement process.
- Review of the alternatives using more broadly described measures intended to determine whether an alternative has a fatal flaw. A fatal flaw generally falls into one of the following categories:
  - The alternative does not address the issue intended or another issue.
  - The alternative results in a substantial impact on the adjacent surroundings (either built or natural) that cannot be reasonably mitigated.
  - The alternative exceeds the transportation improvement budget estimate for the metropolitan area.

- The alternative cannot be reasonably constructed using current engineering standards or through allowing reasonable exceptions to the standards.

As previously noted, those alternatives maintained following this *initial screening* do not necessarily reflect the set of concepts that the consulting team and TAC believe should be included in the recommended long range transportation plan. Those alternatives maintained through the initial screening will next be reviewed in greater detail to establish whether the concept meets the transportation goals and could reasonably be funded over the planning period. Many of the concepts/ideas that are maintained through the initial screening could very well be eliminated, or set aside, through completion of the second level of the screening analysis.

The revised set of alternatives is presented in Figures 1 and 2. A summary of the initial set of discarded alternatives is shown in Table 1, including a brief summary of why each was not included. A complete, updated alternatives screening matrix is presented in Table 2.

ACTION REQUESTED

Please take some time over the next week to review the revised set of improvement alternatives and the preliminary screening recommendations provided in the final column. Provide any comments by Wednesday, June 6. To maintain the schedule of the Street and Highway Plan Update, we need to quickly move into the second, more detailed level of screening. More information relating to the second level screening will be distributed in the coming days.

Please provide any questions, comments or additions to Bill Troe at 402-952-2522 (Bill_Troe@URSCorp.com) or Jason Carbee at 402-952-2506 (Jason_Carbee@URSCorp.com).

Table 1. Initial Set of Discarded Alternatives Following First Level Screening

Preliminarily Discarded Alternative	Reason for Discarding
Widen Washington St to a six-lane cross-section between DeMers and 32nd Ave S	High property impacts
Adjust 2035 Land Development Concept to reduce Columbia Rd congestion	Not reasonable concept, shifts impacts elsewhere
Convert the DeMers Ave / Washington St intersection to a roundabout	Peak hour traffic volumes exceed capacity of multi-lane roundabout
DeMers Ave / Washington St single-movement ramp for westbound to southbound turns	Full interchange provides greater traffic benefits with similar price / impacts
Convert University Ave / 2nd Ave N to a one-way pair between Washington St and downtown	Increased traffic in residential neighborhood, limited operations benefits
Improve S 20th St between DeMers Ave and 32nd Ave S	High residential impacts
Widen DeMers Avenue to 5-lanes from 5th Street (GF) to 4th Street (EGF)	More capacity than required through 2035, high R.O.W. impacts, less cost-effective than CBD signal coordination plan
Add eastbound dual left-turn lanes at 17th Ave S / Washington St Intersection	Minimal benefits. Consider converting current EB turn lane on frontage road into second EB turn lane onto Washington.
Reconstruct 29th St / 24th Ave intersection as a single lane roundabout	Potential queuing from Columbia into roundabout. Signal (if warranted) more appropriate at this location.
Widen Bygland Rd to 5-lanes from 1st St SE to Rhinehart Rd	Capacity of 3-lane would suffice through 2035
Create new corridor including Red Lake River bridge connecting Bygland Rd to Business Highway 2.	Impacts to flood protection infrastructure a fatal flaw
Close University Ave to through traffic between 42nd Street and Columbia Rd	Arterial roadway, would divert significant traffic to adjacent roadways
Signalize WalMart-SuperOne / Columbia Rd intersection	Spacing too close to 32nd Ave / Columbia Signal
Introduce traffic calming measures along Belmont Rd	Corridor is minor arterial, intended to carry traffic
Improve adjacent corridor(s) to relieve traffic on Belmont Rd	Corridor is minor arterial, intended to carry traffic
Introduce traffic calming measures along 4th Ave S (GF) corridor	Corridor is minor arterial, intended to carry traffic. Improvements would be inconsistent with Historical nature of corridor pavement.
Provide Grade Separation of Gateway Dr / BNSF Mill Spur Line	High cost and impacts
Improve University Ave sight distance at BNSF line west of 9th St by realigning rail line	High cost and impacts
Provide Grade Separation of Gateway Dr / BNSF Glasston Line east of 42nd St	High cost and impacts
Realign Business Highway 2 via current CR 17 alignment	Improve curve superelevation on next reconstruction project
North Bypass Corridor on North Fringe of Grand Forks - East Grand Forks Urban Area	Maintain, but only as illustrative concept for beyond 2035. There are no 2035 deficiencies in northern Metro Area

THE FORKS
Long Range Transportation Plan

Initial Universe of Roadway Improvements, May 31, 2007

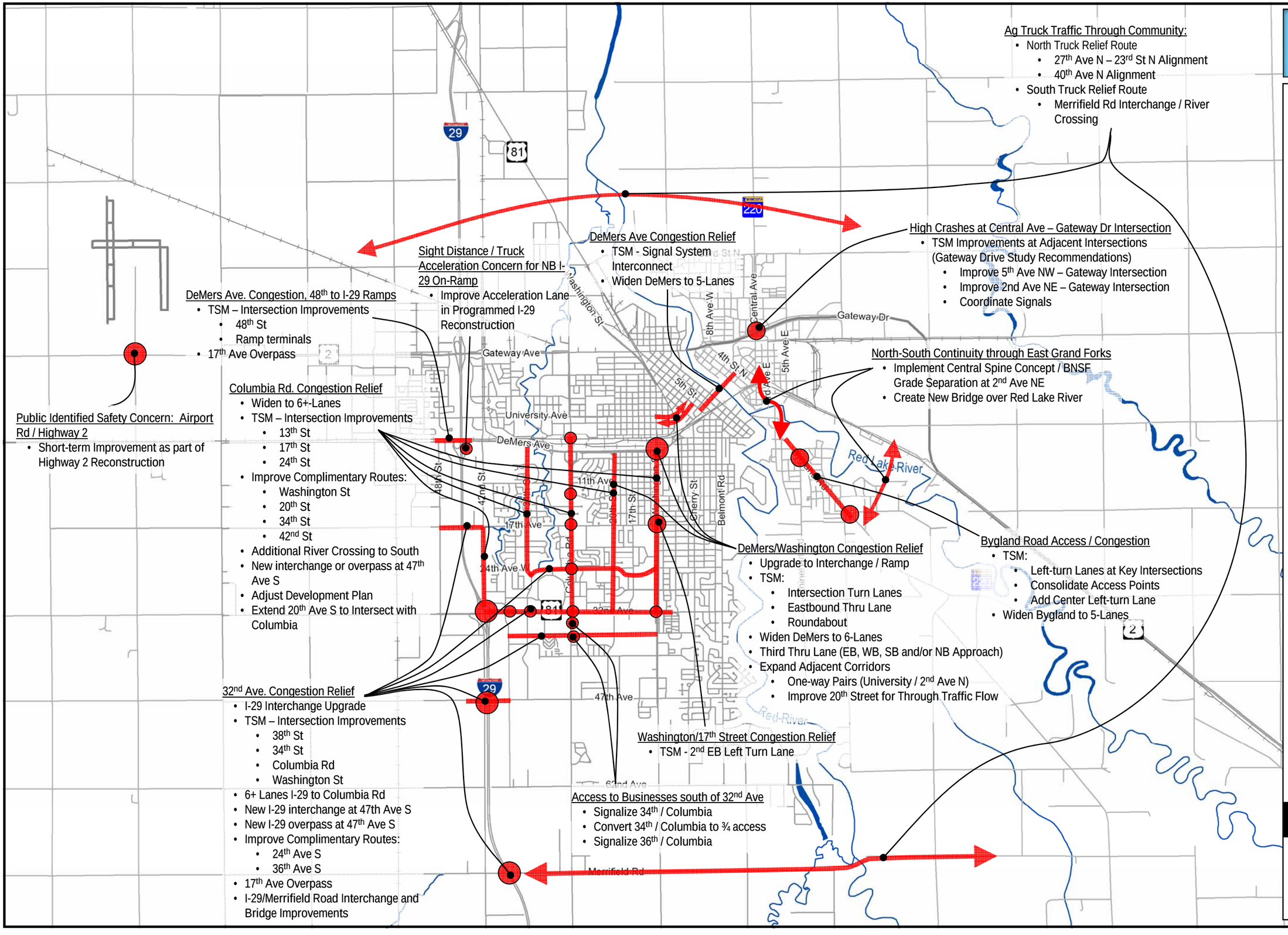

Figure 1

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THE FORKS
Long Range Transportation Plan

Initial Universe of Roadway Improvements, May 31, 2007 (Continued)

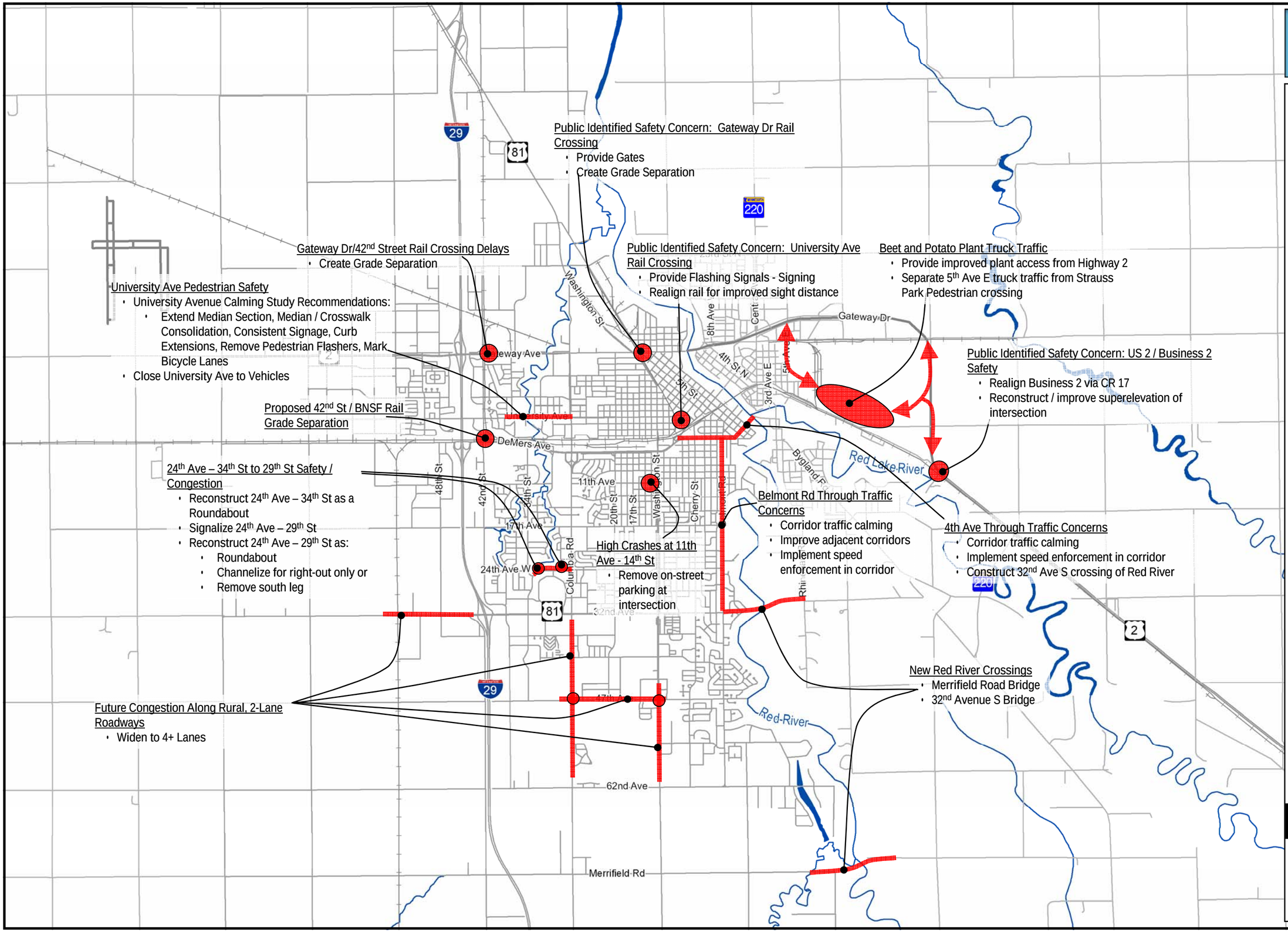

Figure 2

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TABLE 2. Summary of Alternatives Following First Level Screening

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
Congestion Along Columbia Road Corridor					
1. Transportation Systems Management:					
- Add southbound lane between DeMers on-ramp and 13th Ave.	* Minor right-of-way (R.O.W.) acquisition required west of Columbia Rd to maintain sidewalk set-back.	* Provides greater distance for traffic merging from DeMers to SB Columbia. * Utilized as right-turn lane for 11th Ave and 13th Ave. * Part of Columbia Rd corridor study recommendations.	* No significant impacts anticipated.	Low to Moderate	Maintain - modified to extend concept to 13th Ave
- Add turn lanes at signalized intersections along Columbia Road between 32nd Avenue and DeMers Ramps:					
* 13th Ave S / Columbia Rd - Add Southbound dual left-turn lanes.	* Minor R.O.W. acquisition would be required to maintain sidewalk set-back. * Additional traffic lane east of Columbia would be in residential area.	* Currently 270 southbound left turns in PM peak; projected to be 300 in 2035. Concept provides LOS "C" in 2035 PM peak, compared to LOS "E" in 2035 No Build. * Widen and restripe 13th Avenue to a 4-lane cross-section for approximately 1/4 mile on east of intersection to accommodate the southbound left-turns.	* Potential 4f issue - minor widening of EB 13th St into linear park west of 23rd St.	Low	Maintain - lower priority than 17th Ave S Improvement
* 17th Ave S / Columbia Rd - Add dual left-turn lanes for all approaches.	* Driveways for offices on NW and NE corners converted to right-in-right-out only. * Wider roadway cross sections increase pedestrian crossing times and concerns for pedestrian safety. * To maintain current sidewalk setback distances along 17th Ave S, added lanes require minor R.O.W. acquisition.	* Widen and restripe 17th Avenue to a 5-lane cross-section for approximately 1/4 mile on each side of intersection to accommodate the northbound and southbound left-turns. * Current sidewalk setbacks along 17th Ave are 15 to 24 feet from Roadway. * Intersection currently operates at LOS "E" during PM peak. Concept provides LOS "D" in 2035 PM peak, compared to LOS "F" in 2035 No Build.	* Potential 4f issue if ROW is acquired from Apollo Park or Kraft Field in the SE corner of this intersection.	Low to Moderate	Maintain - Include SB right-turn lane as well
* 24th Ave / Columbia - Add dual left-turn lanes and one right-turn lane for SB approach. Restripe east / west legs to provide 2 through lanes.	* Minor R.O.W. acquisition would be required along 24th Ave east of Columbia Rd in order to maintain sidewalk set-back. * Reduced Columbia Rd sidewalk setback could avoid significant acquisition of R.O.W. for the SB right-turn lane; otherwise could impact operations of bank drive-thru. * Wider roadway cross sections increase pedestrian crossing times and concerns for pedestrian safety.	* Widen and restripe 24th Avenue to a 5-lane cross-section for approximately 1/4 mile on east side of intersection to accommodate the southbound left-turns. * Concept would provide LOS "C" in 2035 PM peak, compared to LOS "E" in 2035 No Build. * Convert WB approach to 1 left-turn lane, 2 through lanes.	* No significant impacts anticipated.	Low to Moderate	Maintain
- Extend 20th Ave South between Columbia Rd and 25th Street.	* Decreases traffic adjacent to Park and Red River High School at 17th Ave / 25th Street. * Increases traffic along 20th Ave S east of Columbia, currently classified as local street. * Past concerns about baseballs from fields hitting cars on 20th Ave S. * R.O.W. is available for extension - no impacts.	* Provides diversion of approximately 1,000 vehicles per day (VPD) from 17th Ave. On its own, does not significantly improve operations at 17th Ave - Columbia Rd. * Signal at this location would be coordinated with adjacent Columbia Road intersections. * Consider 3/4 access intersection to avoid signal and maintain reasonable progression on Columbia Rd. * Part of Columbia Rd corridor study recommendations.	* No significant impacts anticipated, but should consider potential for 4f impacts with adjacent park.	Low	Maintain

TABLE 2. Summary of Alternatives Following First Level Screening

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
2. Expansion / Corridor Widening: - Widen Columbia Road to a 7-lane cross section between Demers Ave and 32nd Ave (2030 LRTP Recommendation)	* R.O.W. acquisition would be required along Columbia Rd for new lanes and relocated sidewalk. R.O.W. impacts will be greater if existing right-turn lanes are maintained. * Wider roadway cross sections increase pedestrian crossing times and concerns for pedestrian safety.	* Concept provides additional capacity for north/south through movements. This design provides limited benefits to left-turn delays at 13th, 17th and 24th Ave. * Wider cross section requires all Columbia Rd left-turns to be protected only operations. Negative impact for traffic operations, particularly for the left-turn movements. * On it's own, concept provides LOS "E" at Columbia Rd - 17th Ave due to high delays for left-turning traffic. * Attracts 3,000 to 8,000 additional vpd in 2035 to Columbia Rd compared to base scenario.	* Increased traffic volumes closer to homes could result in noise impacts. * Dependent on sidewalk setbacks, the ROW impact would be 5-12' for each parcel along this corridor. Loss of parking anticipated for some commercial parcels. * Added north-south lanes and dual left-turn lanes, required at Columbia Rd/17th Ave, will result in parcel acquisition.	High	Maintain
- Create 47th Ave S / I-29 Interchange (2030 LRTP Reserved Right-of-Way)	* RV Park / Campground adjacent to 47th Ave / I-29 could be avoided if SB on-ramp were folded into northwest quadrant.	* Provides more convenient I-29 access to planned residential / commercial growth in south Grand Forks. * Reduces 2035 traffic volumes by 5,000 to 8,000 vpd along Columbia Road north of 32nd Ave. * Reduces 2035 traffic volumes by 2,000 to 10,000 vpd along 32nd Ave west of Columbia Rd. * Requires Access Modification Request to FHWA (additional study).	* No significant impacts anticipated.	Moderate to High	Maintain
- Create 47th Ave S Overpass of I-29	* No significant social/R.O.W. impacts anticipated.	* No growth west of I-29 at 47th Ave, so overpass would not connect development areas on both sides. * Network connection to county road west of I-29 (currently unpaved) and potential future S 48th St (not built) offer connections to employment growth west of I-29. * Reduces 2035 traffic volumes by #,000 along Columbia Rd. (awaiting ATAC model run).	* No significant impacts anticipated.	Moderate	Maintain
- Widen 42nd St to a four-lane cross-section between 17th Ave and 32nd Ave S (2030 LRTP Recommendation)	* No significant social/R.O.W. impacts anticipated.	* Would divert approximately #,000 vpd from Columbia Road by 2035 (awaiting ATAC model run).	* No significant impacts anticipated.	Moderate	Maintain
- Improve 34th St between DeMers Ave and 24th Ave S	* Minor R.O.W. acquisitions for IF roundabout installed at 34th/24th intersection (less than 0.1 acre total). No significant impacts to park or apartment. * Approximately five (5) residential driveways along corridor - significantly lower than 20th Street.	* Add left-turn lanes at key intersections to improve through traffic flow. * Corridor has 80' wide right-of-way.	* Roundabout at 34th St / 24th Ave intersection would require minor widening (less than 0.05 acres) into Lions Park.	Low to Moderate	Maintain
- Construct Merrifield Road crossing of Red River (2030 LRTP Recommendation)	* Offers south bypass route for trucks, connecting I-29 south of Grand Forks to US 2 south of East Grand Forks. * Improves general system continuity between southern metro area, high growth area.	* Projected to divert approximately 2,000 vpd from Columbia Road. * In conjunction with Merrifield Road interchange, provides approximately 3,000 to 4,000 vpd diversion from Columbia Rd corridor.	* Additional environment documentation / agency review required. * Tie-in Cole Creek diversion provides flood protection benefits.	High	Maintain - current plan is to complete Merrifield Rd bridge before the 32nd Ave S bridge
- Construct 32nd Ave S crossing of Red River (2030 LRTP Recommendation)	* Would reduce traffic adjacent to 4th Ave S homes, while increasing traffic adjacent to 32nd Ave S homes. * Diverts traffic from 4th Ave S/Point Bridge neighborhood.	* Projected to divert approximately 2,000 to 3,000 vpd from Columbia Road. * Diverts approximately 6,000 vpd from Point Bridge.	* A new river crossing would require environmental documentation and agency review for approval.	High	Maintain - current plan is to complete 32nd Ave S bridge after the Merrifield Rd bridge
- Widen Washington St to a 7-lane cross-section between DeMers and 32nd Ave S	* Significant R.O.W. acquisitions from DeMers to 14th Ave S; R.O.W. currently ranges from 80 to 88 feet wide along this segment. Requires approximately 130' wide R.O.W. * Significant business impacts in corridor likely are a fatal flaw.	* South of Hammerling Ave, shorter distance for vehicles between Washington and frontage roads. * Consolidation of access points north of Hammerling may be desirable for safety reasons.	* Significant business losses / impacts.	High	Discard - high property impacts

TABLE 2. Summary of Alternatives Following First Level Screening

URS

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
3. Land Development Concept Modification: - Reduce allowable future levels of development along the South Columbia Road travelshed; shift development to travelsheds with more reserve capacity.	* Shifting currently-projected development levels is inconsistent with current Grand Forks Land Use Plan. * Would increase growth in other sectors of the city, likely leading to similar levels of congestion in different corridors.	* Decreased traffic growth / congestion in Columbia Rd corridor would be shifted into other corridors.		N/A	Discard - not reasonable
Congestion at DeMers Avenue - Washington Street Intersection					
1. Transportation Systems Management: - Add eastbound through lane (2030 LRTP Recommendation)	* Current sidewalk and trail set-back, this concept would require additional (approx. 16') strip of R.O.W. acquisition. * Concept impacts Fire Station operations in northeast corner; reducing separation between the garage bays and street to approximately 40 feet. Firetrucks parked on driveway would block the trail. * Wider roadway cross sections on DeMers increase pedestrian crossing times and concerns for pedestrian safety.	* Peak hour traffic is higher today (2006) than volumes observed in 2002 for last plan update. * Intersection currently operates at LOS "F" during PM peak hour. Concept would reduce delays, but would still be a LOS "F" by 2035.	* No business acquisition would be required. Current access points could be maintained. * Minor acquisition of railroad property would be required. Property is adjacent to BNSF yard, roundhouse and turntable - possible contamination (fuel / oil) on property?	Moderate	Maintain
- Add 3rd DeMers Ave lane for both the eastbound and westbound approaches	* Would impact operations at Fire Station on Northeast corner; reducing separation between the garage bays and street to approximately 40 feet. * Wider roadway cross sections on DeMers increase pedestrian crossing times and concerns for pedestrian safety.	* Intersection currently operates at LOS "F" during PM peak hour. On its own, this improvement would reduce delays, but would still be a LOS "F" by 2035.	* Acquisition of railroad property would be required. Property is adjacent to BNSF yard, roundhouse and turntable - possible contamination (fuel / oil) on property? * No business acquisition would be required. Current access points could be maintained.	Moderate	Maintain
- Add 3rd Washington St lane for southbound traffic	* To maintain sidewalk as currently configured, would require approximately 18' strip of R.O.W. acquisition ending at 10th Ave S. * Likely three businesses would need to be acquired, significant parking / traffic circulation impacts at three other commercial properties west of Washington St.	* Currently operates at LOS "F" during PM peak hour. On its own, concept reduces delays to LOS "E" by 2035. * May require moving retaining wall north of DeMers to add through lane while maintaining SB right turn lane.	* Significant commercial impacts along Washington St south of the intersection. * Acquisition of R.O.W. at gas station in SW corner of the intersection would require additional environmental investigation.	High	Maintain
- Add 3rd Washington St lane for northbound traffic	* Requires widening for 1/4 mile north of Washington; likely to University Ave. * Likely one business would need to be acquired, significant parking impacts at three other commercial properties east of Washington St corridor.	* Currently operates at LOS "F" during PM peak hour. On its own, concept reduces delays to LOS "E" by 2035. * Would require widening of Washington St underpass of BNSF rail line. NDDOT intends to reconstruct underpass at some point in the future.	* Significant commercial impacts along Washington St north of the intersection. * Acquisition of railroad property would be required. Property is adjacent to BNSF yard, roundhouse and turntable - possible contamination (fuel / oil) on property?	High	Maintain

TABLE 2. Summary of Alternatives Following First Level Screening

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
2. Interchange Concepts - Reconstruct as a single point urban interchange (SPUI)	* Concept requires relocating the Fire Station in the Northeast corner of the interchange. How would this affect fire service for the community? * Loss of Washington St access for some businesses south of Demers Ave. * Complicated construction period maintenance of traffic with poor traffic operations.	* Washington St would be lowered; several access points and at least one street (7th Ave) to the south will need to be closed. * Potential drainage issues with a depressed Washington St. * Westbound off-ramp would be about 200' downstream from the 4th Ave westbound on-ramp: very short weaving distance with negative effect on DeMers traffic flow. * SPUI intersection would operate at LOS "C" in 2035. Through traffic on DeMers would be grade-separated and have no delays.	* Railroad property acquisition would be required adjacent to BNSF yard / roundhouse - possible contamination (fuel / oil) on property? * If current south curbline is held and widening is to the north, fire station and billboard company will be acquired. * If widening is on both sides, impacts include park (4f issue), gas station and former Hardee's (now vacant). * Impacts along Washington St south of DeMers Ave due to the loss of access.	High	Maintain
- Reconstruct as a split-diamond interchange with 4th Ave S	* Concept affects operations into/out of Fire Station in the Northeast quadrant; likely requires relocating facility. * Loss of access to both Washington Street and DeMers for some businesses south of Demers Ave. * Complicated construction period maintenance of traffic with poor traffic operations.	* Eastbound off-ramp and westbound on-ramp at DeMers/Washington; eastbound on-ramp and westbound off-ramp at 4th Ave S/Washington; a collector / distributor (C/D) road would be provided between each. * Eliminates short weave issue between Washington and 4th Ave associated with SPUI. * Washington St - C/D road intersections would operate at LOS "B" and "C" in 2035. Through traffic on DeMers would be grade-separated and have no delays. * Concept could use existing 4th Ave EB-on, WB-off ramps.	* Railroad property acquisition would be required adjacent to BNSF yard / roundhouse - possible contamination (fuel / oil) on property? * If current south curbline is held and widening is to the north, fire station and billboard company will be acquired. * If widening is on both sides, impacts include park (4f issue), gas station and former Hardee's (now vacant). * Impacts along Washington St south of DeMers Ave due to the loss of access.	High	Maintain
- Convert to Roundabout	* Would require a significant radius to accommodate multiple lanes - impacts to businesses on southwest and southeast corners. * Local driver experience with roundabouts limited - none in region. Highest-volume intersection should probably not be the region's test case.	* Not conducive to PM peak traffic - high WB left turn movements would travel around 3/4 of roundabout, conflicting with high SB through movements. * Safety benefits from reduced speed, limited driver requirements for gaps. * Peak hour volumes exceed FHWA guidance for multi-lane roundabout capacity.	* Acquisitions would include gas station, vacant Hardee's and fire station.	Medium-High	Discard - peak hour volumes exceed multi-lane roundabout capacity
- Single-Movement Ramp / Grade Separation for Westbound to Southbound Movement	* Depending on configuration, would still require some property acquisitions at intersection.	* Provides separation of WB left-turning traffic from signal, allows more green time to EB through movement * On its own, would provide LOS "E" in 2035 build condition, compared to LOS "F" in 2035 no-build condition.	* Business impacts	High	Discard - full interchange provides greater traffic benefits with similar price / impacts
3. Expand / Improve Adjacent Corridors - Convert University Ave / 2nd Ave N to a one-way pair between Washington St and downtown. Coordinate new signal at 2nd Ave N with current University and DeMers Signals.	* Concept increases traffic volumes (and potentially speeds) along University and 2nd Ave N. * Reduced access to residences; from the opposite direction, traffic would "go around the block" to get home.	* Concept provides an improved alternate corridor connecting north downtown to Washington Street. * Added WB left-turns at Washington - University may require dual WB left-turn lanes. * On its own, this improvement would reduce delays, but would still be a LOS "F" by 2035. * Would increase SB through traffic in PM peak - might need to consider adding third SB through lane on Washington St. With SB third lane, operates at LOS "E" in 2035.	* Increased traffic impacts to neighborhood along University / 2nd Ave.	Low	Discard - increased traffic in residential neighborhood, limited traffic benefits

TABLE 2. Summary of Alternatives Following First Level Screening

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Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
- Improve S 20th St between DeMers Ave and 32nd Ave	* Increases traffic volumes (and potentially speeds) along 20th St adjacent to approximately 150 homes, several apartment buildings, an elementary school and two parks/rec facilities. * Increases traffic along Safe-Route-to-School designated route (20th Street) for Ben Franklin Elementary School.	* Concept adds left-turn lanes and signals (where warranted), affecting on-street parking at intersections. Given 20th St driveway density, consider removing on-street parking and striping a continuous center left-turn lane. * Would reduce WB left-turns in PM peak at Washington - DeMers, improving operations. Added WB left-turns at DeMers - 20th (currently 220 WB lefts in PM peak) would likely require dual WB left-turn lanes. * S 20th St currently designated a collector street; improvements would likely make 20th St function more as a minor arterial. * Sufficient R.O.W. for left-turn lanes: north of 17th Ave - 80' wide, south of 17th Ave - 90' wide.	* Increased traffic noise due to higher traffic volumes. * On-street parking lost for new turn lanes.	Low to Moderate	Discard - high residential impacts
Congestion Along 32nd Avenue S					
1. Transportation Systems Management: - Add dual left-turn lanes for WB approach of 32nd Ave at 34th St.	* Minor R.O.W. acquisition would be required along 34th St in order to add lane and maintain sidewalk set-back. * Wider roadway cross sections increase pedestrian crossing times and concerns for pedestrian safety.	* Concept provides additional capacity for westbound left-turn movement. * Requires widening of 34th St south to accommodate the WB dual left-turn lane. * Concept improves intersection to LOS "D" in 2035 compared to LOS "E" in 2035 No Build. * Protected left-turn phases should improve safety at the intersection, which has a higher-than-expected crash rate.	* No significant impacts anticipated.	Low to Moderate	Maintain
- Add dual left-turn lanes for NB and WB approaches of 32nd Ave at Columbia Rd.	* No significant impacts anticipated	* Concept provides additional capacity for these left-turn movements. * On its own, this concept would provide LOS "D" in 2035 PM peak, compared to LOS "E" in 2035 No Build. * Current center medians are wide enough to accommodate these additional left-turn lanes.	* No significant impacts anticipated.	Low	Maintain
- Add dual left-turn lanes for NB and SB approaches of 32nd Ave at 38th St.	* Minor R.O.W. required.	* Concept provides marginally improved traffic operations, still at LOS "D". * This improvement may not be necessary with realignment / extension of 42nd St.	* No significant impacts anticipated.	Low	Maintain
- Add additional eastbound and westbound through lanes at the intersection of 32nd Ave and Washington St.	* Minor R.O.W. impacts along Washington St in residential area.	* With signal timing adjustments, predicted 2035 average delay is 37 seconds, within 2 sec of LOS "C"/"D" threshold. This concept would improve average delay to 34 seconds. * R.O.W. east of Washington - 80'; west of Washington - 90'. * Minimal improvement in delay, relatively significant cost for improvement.	* Impact to cemetery or business in SW corner.	Moderate	Maintain - evaluate in combination with 32nd Ave Bridge

TABLE 2. Summary of Alternatives Following First Level Screening

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
2. I-29 / 32nd Ave S Interchange Modification: - Add loop ramps in the NW and SE quadrants, relocate the NB on-ramp in the NE quadrant of the I-29 / 32nd Ave interchange and realign 42nd St (2030 LRTP Recommendation)	* No significant impacts anticipated	* Loop ramps remove left-turn movements from 32nd Ave onto I-29, eliminating their traffic signal phases. * The realignment of 42nd St with the I-29 NB off-ramp allows for direct access to the 42nd St corridor and removes some weaving traffic from the 32nd Ave corridor. * The ramp junction with I-29 for the NB on-ramp should be moved further to the north in order to create greater separation between the consecutive NB on-ramps (AASHTO recommends a minimum of 1000'\). * The lower design speed for the loop ramp in the SE quadrant could be a potential safety concern. * Requires Access Modification Request to FHWA.	* Minor ROW acquisitions required for the realignments of 42nd St and the SB off-ramp. * The realigned NB off-ramp would be located closer to the hotel in that quadrant. Potential noise and vibration concerns?	Moderate to High	Maintain
- I-29 / 32nd Ave interchange with NB on-ramp relocated to 42nd St.	* This is a more urban type design that some drivers may find confusing. With proper signing the new on-ramp would not be difficult to use.	* The configuration would require vehicles accessing the ramp from 32nd Ave to traverse an additional intersection. * This configuration creates greater spacing between the consecutive northbound on-ramps. * Requires Access Modification Request to FHWA.	* Acquisition of ROW to accommodate the new ramp.	Moderate to High	Maintain
3. System Expansion / Widening: - Widen 32nd Ave to a 7-lane cross section between I-29 and Columbia Rd or Washington St (2030 LRTP Recommendation)	* Potential loss of parking for the business in the southwest corner of 32nd Ave and Washington St. * Wider roadway cross sections increase pedestrian crossing times and concerns for pedestrian safety.	* The wider cross section would require all 32nd Ave left-turn movements to be changed to protected only operations. This could have a negative impact for traffic operations, particularly for the left-turn movements. * Concept provides LOS "D" at 32nd Ave / Columbia Rd Intersection in 2035 PM peak, compared to LOS "E" in 2035 No Build.	* No ROW impacts throughout most of corridor. At Washington St, requires ROW takes from either the cemetery on the north side of 32nd Ave or parking for a business on the south side. * Impact to cemetery or business in SW corner of 32nd Ave - Washington St.	High	Maintain
- Create 47th Ave S Interchange (2030 LRTP Reserved Right-of-Way)	* Impact to RV Park / Campground adjacent to 47th Ave / I-29.	* Provides direct I-29 access to planned residential / commercial growth in south Grand Forks. * Reduces 2035 traffic volumes by 5,000 to 7,000 vpd along Columbia Road north of 32nd Ave. * Reduces 2035 traffic volumes by 2,000 to 9,000 vpd along 32nd Ave west of Columbia Rd. * Requires Access Modification Request to FHWA.	* No significant impacts anticipated.	Moderate to High	Maintain
- Create Merrifield Rd Interchange (2030 LRTP Recommendation)	* Would remove some truck traffic from urban streets of Grand Forks and East Grand Forks	* Complements planned Merrifield Rd Bridge providing a truck relief route with a more direct I-29 - US 2 connection. * Interchange reduces 2035 traffic volumes by 2,000 vpd along Columbia Road north of 32nd Ave. * Reduces 2035 traffic volumes by 2,000 to 3,000 vpd along 32nd Ave west of Columbia Rd.	* No significant impacts anticipated.	Moderate to High	Maintain
- Restripe 24th Ave S as a 3-Lane Roadway, Columbia Rd to Washington Street	* Increased traffic in front of approximately 15 single-family homes, 8 apartment buildings, Bringewatt Park. * Loss of on-street parking on one side of corridor.	* Current pavement width is 44' - wide enough for 3-lanes and one lane of parking. * Center turn-lane removes turning traffic to commercial / residential drives for improved through-traffic flow. * No change to current signalized intersections at 24th Ave S / 20th St and 24th Ave S / Washington St. * Diverts approximately 2,000 trips from 32nd Ave corridor in 2035.	* Increased traffic past residences and park.	Low	Maintain - Added after Workshop

TABLE 2. Summary of Alternatives Following First Level Screening

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Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
- Widen and Extend 36th Ave S as 3-Lane Roadway, 38th Street to Washington Street	* Increased traffic adjacent to existing homes south of 36th Ave at 31st St.	* Provides Backage Road/Collector System for Commercial Development south of 32nd Ave. * Center turn-lane removes turning traffic to commercial / residential drives for improved through-traffic flow. * Future signals: 34th St / 36th Ave S, Columbia Rd / 36th Ave S, 20th St / 36th Ave S and Washington / 36th Ave S. * Diverts approximately 2,000 trips from 32nd Ave corridor in 2035.	* Current farmstead west of 36th / Washington intersection. Site will likely be redeveloped by 2035 (Land Use Concept Growth Area) - reserve 36th Ave corridor.	Moderate	Maintain - Added after Workshop
- Complete 17th Ave South Overpass of I-29, with Connection between 48th Street and 42nd Street (2030 LRTP Recommendation)	* Limited property acquisition. * Improved access to S 48th St Business Park.	* Would divert approximately 2,000 to 3,000 vpd from 32nd Ave west of Columbia Rd.	* Coulee south of 17th Ave alignment.	Moderate to High	Maintain
DeMers Avenue Congestion, 5th Street (GF) to 4th Street NW (EGF)					
1. Transportation Systems Management: - Implement CBD Traffic Study Recommendations (Signal Removals and Signal System Interconnect)	* No anticipated impacts.	* Remove signals at: 5th St / Bruce (GF), 2nd St / DeMers (EGF), 4th St / 3rd Ave (EGF) * Convert 3rd St / DeMers (EGF) to signal * Interconnect DeMers Ave and 5th St (GF) signal systems. * Study found acceptable long-term operations with similar traffic levels.	* No significant impacts anticipated.	Low to Moderate	Maintain
2. Corridor Widening: - Widen DeMers Avenue to 5-lanes from 5th Street (GF) to 4th Street (EGF)	* R.O.W. through each downtown is 80 feet. * Significant property impacts through corridor. * Would require removal of on-street parking.	* Would require wider Sorlie Bridge. Sorlie Bridge reconstruction at some point beyond 2030. * Likely more capacity than required through 2035.	* A widened river crossing would require environmental documentation and agency review for approval.	High	Discard - more capacity than needed, high R.O.W. impacts, less cost-effective than CBD signal coordination
Congestion at 17th Avenue - Washington Street Intersection					
1. Transportation Systems Management: - Add eastbound dual left-turn lanes	* Widen to south; approximately 12' of R.O.W. to maintain sidewalk setback. * Concept impacts parking for tire store on SW corner of intersection.	* 2035 delay with signal optimization is 36 seconds - LOS "C"/"D" threshold is 35 seconds. * Projected to be 260 eastbound left turns during PM peak in 2035. Concept provides LOS "C" during PM peak for 2035.	* Some R.O.W. required - may affect parking at tire store.	Low to Moderate	Discard - minimal benefits compared to R.O.W impact
- Convert current turn lane for frontage road into second eastbound turn lane for Washington, eliminate eastbound left-turns onto frontage road. Sign one block of 14th St as backage access to frontage road.	* Loss of direct access to frontage road from EB 17th Ave S. Increased traffic volumes on 14th Street between 17th Ave S and 16th Ave S - 8 single-family homes and an apartment building. * No change in R.O.W. or pavement width.	* Provides dual easbound left-turns onto Washington Street with out widening into business parcel to the south. * Concept provides LOS "C" during PM peak for 2035.	* Increased traffic volumes past homes on 14th Street between 17th Ave S and 16th Ave S.	Low	Maintain - added after workshop
24th Avenue - 34th Street and 29th Street Congestion and Safety					
1. Transportation Systems Management: - Reconstruct 24th Avenue - 34th Street intersection as a single lane roundabout	* Minor R.O.W. acquisitions for IF roundabout installed at 34th/24th intersection (less than 0.1 acre total). No significant impacts to park or apartment. * A roundabout would be considered new for region and gaining acceptance can be more difficult.	* A roundabout design reduces the number of directions of traffic a motorist needs to view when looking for a gap to enter the intersection. * A roundabout intersection design results in lower entry speeds into the intersection, reducing crash severity.	* Property to the north of the current intersection is part of Lion's Park - requires minimal (less than 0.05 acres) acquired. * Minor property acquisition to the west - likely would not affect parking / garages at apartment building.	Low to Moderate	Maintain
- Channelize northbound 29th St approach to restrict northbound left-turns onto 24th Avenue.	* No significant impacts anticipated	* Full northbound access maintained at mall driveway 500' west of 29th Street. * Eliminates a conflicting turn movement to improve safety. * Restricting southbound turn movements likely high impacts - significant residential / commercial businesses north on 29th Street.	* No significant impacts anticipated.	Low	Maintain

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Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
- Remove south leg of 29th Street intersection	* Less direct access to big-box retail on SE corner of intersection (for lease).	* Reduces conflicts for southbound left-turning traffic. * Northbound access to 24th Ave available at driveway 500' west of 29th Street.	* No significant impacts anticipated.	Low	Maintain
- Provide a traffic signal for the 29th Street intersection	* No significant impacts anticipated * A traffic signal must be warranted before installation.	* A traffic signal should help alleviate many of angle crashes experienced at this intersection. * Resulting signalized intersection spacing between this intersection and the Columbia Rd / 24th Ave intersection is approximately 500'.	* No significant impacts anticipated.	Low	Maintain - signal should meet warrants before included in TIP
- Reconstruct 29th Street intersection as a single lane roundabout	* The roundabout would be built to the west of the existing intersection to avoid impacting businesses in the NE and SE quadrants of the intersection. * A roundabout would be considered new for region and gaining acceptance can be more difficult.	* A roundabout intersection design results in lower entry speeds into the intersection and this reduces the severity of crashes. A roundabout can also viewed as traffic calming for the 34th St / 24th Ave corridor. * A roundabout intersection design reduces the number of directions of traffic a motorist needs to view when looking for a gap to enter the intersection. * Eastbound queues from the Columbia Rd / 24th Ave intersection could impact roundabout operations. * May require a 2-lane roundabout by 2035.	* Acquisition of ROW in the NW and SW quadrants of the current intersection in order to accommodate the new roundabout. * A drainageway located to the west and south of this intersection would have to be enclosed to accommodate the roundabout design. * Property to the NW of the current intersection is part of Lion's Park.	Moderate	Discard - potential queuing from Columbia into roundabout. If warranted, signal would be more appropriate at this location
Bygland Road Congestion / Access					
1. Transportation Systems Management: - Add left-turn lanes at key intersections.	* Bygland R.O.W. is approximately 150' wide south of 6th Street, 100' wide north of 6th Street - limited impacts.	* Reduces peak hour delays by separating the majority of left-turning traffic on Bygland from through traffic.	* No significant impacts anticipated.	Low	Maintain
- Widen to a 3-lane cross-section	* Maintains access to all drives / streets.	* Reduces peak hour delays by separating all left-turning traffic on Bygland from through traffic.	* No significant impacts anticipated.	Low to Moderate	Maintain
- Consolidate minor street accesses along Bygland.	* Would increase traffic adjacent to some residences, reduce traffic adjacent to other residences. * Reducing access point density typically improves corridor safety.	* Focuses traffic turning onto Bygland to a smaller set of intersections. * Signals or roundabouts may be warranted at some of the remaining intersections, allowing easier access onto Bygland.	* Minor increase in out-of-direction travel.	Low	Maintain
2. Corridor Widening: - Widen Bygland Rd to 5-lanes from 1st St SE to Rhinehart Rd	* Limited impacts - Current R.O.W. could accommodate 5-lane cross-section with sidewalks. * Current Levee Opening is about 80' - impact on flood gate operations?	* TSM section likely provides sufficient capacity through planning horizon.	* No significant impacts anticipated.	Moderate to High	Discard - capacity of 3-lane would suffice through 2035
North-South Continuity through East Grand Forks					
1. System Expansion - Implement Central Spine Concept, Option 4. Provide a 2nd Ave NE grade separation with BNSF mainline (2030 LRTP Recommendation)	* Limited social impacts compared to other grade separation options. * Public input during "Grade Separation Study" was decidedly opposed to R.O.W. acquisitions.	* Provides East Grand Forks reliable north - south corridor by eliminating traffic delays from BNSF trains. * 9 Trains a day	* Concept is consistent with public option found in Grade Separation Study's public outreach program - at that time there was opposition to concepts that involved residential property acquisitions.	High	Maintain
- Create new corridor including Red Lake River bridge connecting Bygland Rd to Business Highway 2.	* Increased traffic volumes / traffic noise through residential neighborhood. * Potential impacts to industrial / commercial businesses adjacent to Business Highway 2. * Impacts to flood contorl inconsistent with plan goals / objectives.	* City purchased R.O.W. in subdivision for potential crossing at 19th Ave SE. However, in mean time flood control pumps placed in this location. * Could potentially divert some traffic from Bygland Rd north of Middle School. * Murray Bridge and Malory Bridge are 3 miles apart.	* A new river crossing would require environmental documentation and agency review for approval. * Increased traffic on residential / locally-classified streets.	High	Discard - impacts to flood protection infrastructure a fatal flaw

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DeMers Avenue Congestion, 48th Street to beginning of 4-Lane Section					
1. Transportation Systems Management (48th Street Study): - Extend 48th St South to 32nd Ave, Improve turn radii and Signalize 48th / DeMers, SB I-29 / DeMers (2030 LRTP Recommendation)	* Improves heavy truck access to industrial park.	* Provides sufficient operations / access into industrial park. Without improvements, unsignalized traffic operations degrade to LOS "F" by 2035.	* No significant impacts anticipated.	Low	Maintain
2. System Expansion - Complete 17th Ave South Overpass of I-29, with Connection between 48th Street and 42nd Street (2030 LRTP Recommendation)	* Limited property acquisition.	* Would divert approximately 2,000 to 3,000 vpd from DeMers Ave west of 42nd St.	* Coulee south of 17th Ave alignment.	Moderate	Maintain
University Avenue corridor through UND Campus					
1. Implement University Ave Traffic Calming Study - Median extended to Stanford Rd, Median Closures, Crosswalk Consolidation, Consistent Signage, Curb Extensions, Remove Pedestrian Flashers, Mark Bicycle Lanes	* Improve pedestrian safety in corridor. * Potential to beautify campus corridor.	* Three (3) pedestrian-vehicle crashes in University corridor over 2003-2005 analysis period. * Consolidates pedestrian crossings, vehicle turning locations to reduce conflict points.	* No significant impacts anticipated.	Low	Maintain - lower priority as 2002 calming study not supported by University
2. Close University Ave to through traffic	* Decreases accessibility to adjacent businesses and residences.	* Currently carries between 8,300 and 9,300 vpd. * 2035 Forecast: 9,000 vpd to 12,000 vpd. * Would divert approximately 4,000 vpd to DeMers, 4,000 vpd to 6th Ave N, 2,000 vpd to Gateway Dr.	* Increase in regional VMT.	Low	Discard - arterial roadway, would divert significant traffic to adjacent roadways
Access to Businesses south of 32nd Avenue to / from Columbia Road					
1. New Traffic Signals - Signalize WalMart - SuperOne Driveway / Columbia Rd intersection	* Benefits access into / out of retail area.	* Signal only 1/8 mile south of 32nd Ave - not consistent with guidance of 1/2 mile signal spacing. * Dense signal spacing has negative impact on Columbia Rd traffic flow. * Rather than signalization, consider converting intersection to 3/4 access (no EB / WB left-turns) - consistent with Columbia Rd corridor study.	* No significant impacts anticipated.	Low	Discard - too close to 32nd Ave S signal. Consider 3/4 access and installing signal at 36th Ave S
- Signalize 36th Ave S - Columbia Rd intersection	* Improved 36th Ave provides backage roadway - benefits access into / out of retail area.	* Improved signal spacing at 1/4 mile, but not consistent with guidance for Columbia Rd - 1/2 mile signal spacing. Spacing consistent with Columbia Rd north of 32nd Ave. * Enhances concept to provide effective east-west backage road at 36th Ave S. * Signal should meet warrants before installed.	* No significant impacts anticipated.	Low	Maintain
Belmont Road Through Traffic Concerns					
1. Introduce traffic calming measures in corridor	* Intent would be to reduce average speeds closer to posted speed of 25 mph. * Appropriate calming program could reduce average travel speeds in corridor.	* Belmont is a minor arterial: function includes serving through traffic. * Pavement width is already relatively narrow - 30' wide for two travel lanes and one lane of on-street parking.	* No significant impacts anticipated.	Low to Moderate	Discard - corridor is minor arterial
2. Improve adjacent corridor(s) to relieve traffic on Belmont	* Reduce traffic volumes on Belmont. * Would increase traffic volumes on improved street(s).	* Difficult to identify alternate corridor: - Chestnut St (1 block west) is continuous corridor, but classified as a local street - Cherry Street is a collector, not intended for through traffic. - Washington Street is 3/4 mile west, and has peak hour delays at DeMers intersection.	* No significant impacts anticipated.	Moderate to High	Discard - corridor is minor arterial
3. Implement speed enforcement program in corridor	* An aggressive program will likely provide at minimum a temporary reduction in corridor speeds.	* Documenting speeds is the first step in establishing need for corridor traffic calming program.	* No significant impacts anticipated.	Low	Maintain

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Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
4th Avenue South Through Traffic Concerns					
1. Transportation System Management - Introduce traffic calming measures in corridor	* Intent would be to reduce average speeds closer to posted speed of 25 mph. * Appropriate calming program could reduce average travel speeds in corridor.	* 4th Ave S is a minor arterial: it's function includes serving through traffic. * East of Cherry St, pavement width is already relatively narrow - 30' wide for two travel lanes and one lane of on-street parking.	* No significant impacts anticipated. * Calming improvements potentially inconsistent with historical nature of granitoid pavement.	Low to Moderate	Discard - corridor is minor arterial; historical pavement inconsistent with calming improvements
- Implement speed enforcement program in corridor	* An aggressive program will likely provide at minimum a temporary reduction in corridor speeds.	* Documenting speeds is the first step in establishing need for corridor traffic calming program.	* No significant impacts anticipated.	Low	Maintain
2. System Expansion - Construct 32nd Ave S crossing of Red River (2030 LRTP Recommendation)	* Would reduce traffic adjacent to 4th Ave S and Belmont Rd homes, while increasing traffic adjacent to 32nd Ave S homes.	* Projected to divert approximately 2,000 to 5,000 vpd from 4th Ave S corridor by 2035. * Current plan is to construct 32nd Ave S bridge after completion of the Merrifield Rd bridge.	* A new river crossing would require environmental documentation and agency review for approval.	High	Maintain
High Crash Rate at 11th Avenue - 14th Street Intersection					
1. Transportation System Management - Remove on-street parking adjacent to intersection.	* Anticipated to reduce crashes at intersection.	* Low volume intersection with 11 crashes during 2003 - 2005 period. 600 vpd on 11th Ave, 1900 vpd on 14th St. * Current configuration is Northbound-Southbound free movements, Eastbound-Westbound stop-controlled. * On-street parking at intersection has some impact on drivers' view.	* No significant impacts anticipated.	Low	Maintain
High Crash Rate at Gateway Drive / Central Avenue Intersection					
1. Implement Gateway Drive Access Management Study Recommendations (2030 LRTP Recommendation)	* Diverts locally-generated traffic to new access points at 5th Ave NW and 2nd Ave NE.	* New signal-controlled intersections would be coordinated with Central Ave intersection. * On its own, 5th Ave intersection diverts 3,000 vpd from north leg of Central Ave - Gateway Dr in 2035. * Acceptable intersection operations through 2035.	* No significant impacts anticipated.	Moderate	Maintain
Public Identified Safety Issue: Gateway Drive / 5th Street Intersection and Rail Crossing					
1. Provide additional lane striping and gates warning stopped vehicles to stay off of tracks	* Could reduce potential for auto-train crashes at this crossing.	* 5th St - Gateway intersection and rail crossing are less than 100' apart. * Rail line carries 3 trains / day. 2005 ADT: 24,700 vpd * Current cantilever lights and additional flashing sign provide significant warning to autos of approaching trains. * Average train operating speed is less than 10 mph.	* No significant impacts anticipated.	Low	Maintain
2. Provide Grade Separation of Gateway / BNSF Mill Spur Line	* Eliminates delays and safety issues associated with at-grade crossing * Loss of access to adjacent businesses	* Would require grade separation of 5th St and Gateway in addition to rail line due to close spacing. * No reported crashes over 2003 to 2005 analysis period	* Business acquisitions likely.	High	Discard - high cost and impacts
Public Identified Safety Issue: University Ave - BNSF Rail Crossing west of 9th Street					
1. Provide flashing signals as advance train crossing warning	* Flashing rail signals could provide a more safe rail crossing to vehicular and pedestrian traffic.	* Rail line carries 3 trains / day. 2005 ADT: 5,000 vpd * No reported crashes over 2003 to 2005 analysis period * Average train operating speed is less than 10 mph.	* No significant impacts anticipated.	Low	Maintain
2. Improve sight distance by realigning rail line to run more perpendicular to University Ave	* Would require acquisition of new R.O.W., likely several residences.	* BNSF Right-of-way approximately 100' * Any significant rail re-alignment (if possible) would be outside of existing BNSF R.O.W. * High cost likely a fatal flaw.	* No significant impacts anticipated.	High	Discard - high cost and impacts

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Public Identified Delays at BNSF crossing of Gateway Drive east of 42nd Street					
1. Provide Grade Separation of Gateway / BNSF Glasston Line	* Eliminates delays and safety issues associated with at-grade crossing * Trains reportedly stop on tracks. * Potential need to find new access point for frontage road east of tracks.	* Car-train injury crash in March 2003 * 2 Trains per Day. 2005 ADT: 18,800 vpd * Average train operating speed is less than 25 mph. * DeMers Ave would be alternate route for Gateway traffic during delay. * Requires 42nd St - Gateway grade separation of in addition to rail line due to close rail - 42nd St spacing.	* No significant impacts anticipated.	High	Discard - high cost and impacts
Truck Traffic Related to East Grand Forks Potato and Sugar Beet Plants					
1. Improve access to plants from Highway 2 (East of Plant).	* Would reduce heavy truck traffic on residential streets including 5th Ave E.	* 5th Street has recently been improved to handle high truck volumes. * Alternatives that orient truck traffic to east of plants would require out-of-direction travel for many trucks. * Requires compliance by trucks accessing plants. * Truck restrictions not allowed on MnDOT - funded roads. * Most truck trips originate from north MN 220 or US 81. * Delivery operations at SW corner of property, away from US 2	* No significant impacts anticipated.	Low to Moderate	Maintain
2. Alter 5th Ave NE to avoid crossing Strauss Park ball fields / parking lots.	* Allows safe pedestrian access between parking lot (east of current 5th Ave) and Strauss Park.	* Realign 5th Ave E to east of Strauss Park parking lots.	* No significant impacts anticipated.	Low to Moderate	Maintain
3. Redevelop Strauss Park to place parking lots west of 5th Ave.	* Eliminates need for pedestrians to cross 5th Ave. * Potential to displace some park uses at this location.	* Consider converting current skating rink area to parking, placing seasonal skating rinks on parking lot in Winter.	* Depending on redevelopment scenario, may need to re-site some park uses.	Low to Moderate	Maintain
Public Identified Safety Issue: US 2 / Business 2 Intersection					
1. Realign Business Highway 2 - Use current CR 17 alignment and close current Business 2 / US intersection	* Creates minor out-of-direction travel for business located along Business Hwy 2 southeast of current CR-17/Business 2 intersection.	* CR 17 intersection, 1/2 mile north of current Business 2 intersection, would provide better sight distance due to 90 degree intersection. * Only engineering issue appears to be superelevation. * Issues with county - state roadway jurisdiction.	* Reduction in pass-by traffic for businesses, likely minimal impact.	Low to Moderate	Discard - Improve US 2 superelevation on curve during next reconstruction project
Future Congestion Along Current Rural, Two-Lane Roadways					
1. As development occurs, widen rural, two-lane roadways - 4-Lane Divided for - 32nd Ave: 52nd St to I-29, Columbia Rd: 34th Ave to 50th Ave, Washington St 47th Ave to 55th Ave - 3-Lane for 47th Ave South: Columbia Rd and Washington St	* Provide sufficient capacity to 25+ year growth areas.	* Provides acceptable traffic operations through 2035. * Provides consistent design with adjacent urbanized roadway segments * Arterial intersections in development area will require signalization, added turn lanes.	* No significant impacts anticipated.	Moderate to High	Maintain

TABLE 2. Summary of Alternatives Following First Level Screening

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
New Red River Crossings					
1. Construct Merrifield Road crossing of Red River (2030 LRTP Recommendation)	* Offers south truck relief route, connecting I-29 south of Grand Forks to US 2 south of East Grand Forks. * Improves general system continuity between southern metro area, high growth sector.	* Preliminary forecasted to attract between 3,000 and 5,000 vpd in 2035. * In conjunction with Merrifield Road interchange, provides some diversion of traffic from 32nd Ave S and Columbia Rd corridors.	* Additional environment documentation / agency review required. * Tie-in Cole Creek diversion provides flood protection benefits.	High	Maintain
2. Construct 32nd Ave S crossing of Red River (2030 LRTP Recommendation)	* Would reduce traffic adjacent to 4th Ave S homes, while increasing traffic adjacent to 32nd Ave S homes. * Diverts traffic from 4th Ave S/Point Bridge neighborhood.	* Projected to divert approximately 2,000 to 5,000 vpd from 4th Ave S corridor by 2035. * Preliminarily Projected to attract approximately 4,000 to 6,000 vpd to 32nd Ave S between Washington and Belmont.. * Current plan is to construct 32nd Ave S bridge after completion of the Merrifield Rd bridge. * Improves system continuity by connecting south Grand Forks and south East Grand Forks; both high-growth areas through planning horizon.	* A new river crossing would require environmental documentation and agency review for approval.	High	Maintain
DeMers / 42nd Street Grade Separation					
1. Grade Separate 42nd Street from BNSF Rail Line (2030 LRTP Recommendation) - Maintain access between DeMers and 42nd via Interchange	* Some R.O.W. impacts with University property. * Improves reliability of access to UND campus, travel along 42nd St.	* Eliminates train delays for 42nd Street traffic.	* No significant impacts anticipated.	High	Maintain
Identified Issue with Agricultural Freight Movements through Community					
1. Create East-West Bypass Corridor on North Fringe of Grand Forks - East Grand Forks Urban Area (North Bypass / Truck Relief Route)	* Represents longer travel distances; can be difficult to encourage out-of-direction travel. * No anticipated acquisitions of houses or businesses.	* Provides direct bypass route for traffic to/from I-29 north of GF to US 2 east of EGF and US 2 through traffic. * Concept does not directly address any identified capacity deficiencies.	* 27th Ave N / 23rd St N alignment would impact EGF golf course. * A new river crossing would require environmental documentation and agency review for approval. * Requires conversion of agricultural land.	Very High	Maintain as illustrative concept for beyond 2035 - there are no 2035 deficiencies in northern Metro Area
2. Construct Merrifield Road / I-29 interchange and Merrifield Rd crossing of Red River (South Truck Relief Route - 2030 LRTP Recommendations)	* Offers south truck relief route, connecting I-29 south of Grand Forks to US 2 south of East Grand Forks.	* Preliminary forecasted to attract 5,000 to 14,000 vpd in 2035. * Predicted to divert 2,000 - 4,000 vpd from 32nd Ave S. * Predicted to divert 500 - 2,000 vpd from DeMers Ave. * Predicted to divert 1,000 - 2,000 vpd from Gateway Dr.	* Additional environment documentation / agency review required.	High	Maintain
Public Identified Safety Concerns: Airport Road / Highway 2					
1. Current Highway 2 Reconstruction Project should address this.	* Issue raised during involvement process.	* Currently a signalized with flashing advanced warning to traffic on Highway 2.	* No significant impacts anticipated.	Low	Maintain
Sight-Distance / Truck Acceleration Concern for Northbound I-29 DeMers On-Ramp					
1. Programmed I-29 Reconstruction Project should address this.	* Issue raised by trucking industry representative during involvement process.	* Increased acceleration lane length should allow increased truck speeds, further distance from crest of hill during merge.	* No significant impacts anticipated.	Low to Moderate	Maintain

MEMORANDUM

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To: **Earl Haugen**
Grand Forks – East Grand Forks MPO TAC

Date: June 7, 2007

Subject: **Alternatives Screening – Phase 2 Preliminary Roadway Scoring**

BACKGROUND/PURPOSE

The alternatives analysis process being employed as part of the Long Range Transportation Plan update incorporates a two-phased screening of the universe of alternatives for addressing identified transportation system issues. As part of the two-level process the following were included in the scope:

- *Phase 1*: The primary purpose of this phase in the analysis has been to narrow the universe of alternatives by removing those that do not reasonably reflect the transportation goals or do not have local support. In this phase, the study team has reviewed each of the street / highway alternatives relative to a set of criteria that reflect the local transportation system goals and the federal MPO planning factors to identify potential fatal flaws. Those alternatives identified as containing fatal flaws have been dismissed from further consideration and reasons for eliminating them documented. This phase of the Alternatives Analysis was discussed at the May 9 TAC workshop, and documented in a May 31, 2007 memo from URS.
- *Phase 2*: For each of the alternatives that were maintained through the Phase 1 assessment, conduct additional assessment of the positive and negative aspects of the concept relative to the established standards / evaluation criteria. The product of this stage of the alternatives analysis will be a prioritized listing of the projects to be included in the transportation plan. The prioritized listing will be based on how well an individual alternative (or combination of alternatives) scored compared to the other alternatives. Each of the alternatives will be scored using similar criteria and rating scale.

The purpose of this memorandum is to:

- Summarize for review the Phase 2 screening methodology for the roadway system.
- Provide documentation of the evaluation criteria employed in the Phase 2 scoring. Through the process a number grade was assigned to each alternative relative to how it did or did not meet the goals associated with the specific criteria.

- Document the preliminary results of the scoring for each of the roadway assessment locations. URS staff has worked with MPO staff to develop a preliminary set of scores for the projects that emerged from the Phase 1 screening, evaluated by each of the criteria.

PHASE 2 SCREENING METHODOLOGY

OVERVIEW

As previously documented, alternatives included in the "Maintain" list developed following the Phase 1 screening were those that provide utility in meeting the transportation goals and in addressing identified transportation issues/concerns/deficiencies. This is not to say that all of the alternatives should be implemented, nor should it be concluded that there is overwhelming local and regional consensus for implementation of each concept on the Maintain list carried into the Phase 2 assessment. Many of the maintained concepts will be eliminated in this second phase. It should also be noted that not all of the alternatives included in the list have the level of community support that will be required to see them through to implementation. Thus, will be eliminated or placed very low on the priority list.

The purpose of the Phase 2 screening process is to shift through each of the remaining ideas / concepts and prioritize them such that those alternatives likely to be implemented by 2035 provide a roadway system that supports the regional transportation goals and is cost constrained. Development of the prioritized list will require completing several iterations of review through the scoring summary provided. The desired product of the various iterations is listed below:

- Initial Iteration: The Maintain list developed through the Phase 1 screening contains multiple improvement concepts for selected issues. The first iteration through the Phase 2 scoring results is completed with the goal of selecting the locally preferred concept for addressing a particular corridor. For example, several concepts remain for addressing congestion at the Washington Street – DeMers Avenue intersection, including widening various approaches to the intersection and two-different interchange concepts. Through the first iteration the desire is to identify which of these ideas/concepts is the preferred. The intent has been to provide a range of evaluation criteria broad enough and well enough defined to allow for selection of a preferred concept through the scoring results. The initial iteration will be the focus of the June 20 TAC meeting.
- Subsequent Iteration(s): As the Transportation Plan needs to be cost constrained, and as the transportation system goals are multi-faceted, and as there is not a single-minded focus of what is needed in the community, the committees will be required to make some difficult trade-offs and decisions as to which projects will be included in the funded list and which will not. The TAC, the Executive Board and the community are required to make the decision as to the projects and programs that will make up the recommended list. The scoring summary information can be used to *assist* in prioritizing the project/program list. Those projects scoring the highest, in the case where the scoring is used as the primary determinant, would be included in the list as the highest priorities.

It is highly unlikely that the fundable list will be developed through simply reviewing the project scoring, but it can be used as a tool in making some hard decisions. As the scoring incorporates a very broad range of criteria, the results of the scoring can be reviewed by the committees as we discuss the recommended list and it is possible / acceptable to provide a weighting to the various criteria to reflect the importance of each. The importance-weighted scoring could very well be used in resolving debates on qualitative topics that could come up through the continued assessment.

METHODOLOGY

The scoring criteria applied in the Phase 2 assessment incorporate a broad range of inputs that cover the social, engineering and environmental perspectives. Incorporating these perspectives into the transportation assessment process is a requirement of SAFETEA-LU in addressing the metropolitan long range planning factors. Through the proposed methodology, numerical values are assigned to specific criteria associated with each of the perspectives. The numerical values are tied to a definition of the level to which a particular plan objective (such as reducing congestion, vehicle hours of travel, number of congested miles, etc.) is met. In this application, higher numerical values reflect a more favorable or positive association and lower numerical values reflect less favorable or negative conditions. Thus, when the numbers are summed, the concept(s) with the highest cumulative number would reflect a greater all around addressing of the community transportation goals relative to the other ideas/concepts.

URS staff and MPO staff have reviewed each of the improvement concepts relative to the criteria and have provided our initial opinions as to scoring in each of the categories. It needs to be emphasized that some of the scoring values are open to interpretation and it is very likely that through the local review process the scores recorded in any one or numerous cells could be adjusted, all of which will be discussed at the June 20 workshop.

Scoring Criteria Definitions

While the entire assessment process would be easier if it were possible to use only criteria that could be discretely quantified, it is not really possible when we need to include elements that can only be measured through more qualitative means (such as community support, consistency with plans, etc.). Thus, we have developed some preliminary definitions for each of the score cells in the overall Phase 2 scoring matrix. The definitions for each are documented in Table 1.

PHASE 2 SCREENING RESULTS

The preliminary results of evaluating each of the concepts/ideas that were maintained through the Phase 1 screening are displayed in Table 2, and are sorted by score and presented in Table 3. Included in this table are:

- Brief descriptions of the alternatives identified to address the transportation issue.
- A preliminary scoring summary for each of the alternatives using each of the criteria. Scores on the 0 to 6 scale for each of the criteria are included. For all of the criteria 6 reflects the highest score (most consistent, greatest relative positive impact, least relative negative impact, etc.) and 0 the lowest.
- Summation of the score in each criteria category.

Figure 1 illustrates the scored project locations in Table 2.

GENERAL NOTES ON THE INITIAL SCORING

Listed below are some general notes that we ask that you consider as you review the material:

- The cost estimates are on-going. Thus, there could be minor changes to the scoring in this category if a project that we initially thought would be relatively low cost ends up being a high cost project and vice versa.
- Depending on the corridor/issue, we will likely maintain multiple improvement concepts in selected corridors.
- If additional detailed information on each of the alternatives is needed, please refer back to the memorandum that was circulated May 31 relating to summary of the Phase 1 alternatives screening. Each of these alternatives are included in that documentation and the previous documentation was used to provide source data for items such as level of social impacts, congestion relief, etc.

ACTION REQUESTED

Please review the information included in this memorandum and provide your comments. The scoring is a tool in evaluating how well the concepts address the plan goals and objectives; it is not anticipated that the scoring be the final say in which projects will be included in the plan, and which projects are not.

It is our hope that TAC members review the prioritization and scoring information provided in the tables prior to the June 20 workshop, when we will discuss this information. Please contact us if you have any questions.

Table 1
Transportation System Improvement Prioritization Criteria

Assessment Perspective/ Measure of Effectiveness	Score / Definition			
	6	4	2	0
Social				
Local Public Support for Project/Program	Significant Community Support/Consistent with Other Plans/Guidelines	Moderate Support from Community/Leaders	Minimal Support from Community/Leaders	No/Limited Support
Multi-Modal Support	Project Includes Significant Multi-Modal Links (Transit/Non-Motorized/Roadway); Incorporated into Design	Project Includes Moderate Multi-Modal Links (Transit/Non-Motorized/Roadway)	Project Includes Minimal / Isolated Multi-Modal Links (Transit/Non-Motorized/Roadway)	Project Does Not Address Multi-Modal Connectivity
Consistency with Local/Regional Plans	Supports Comprehensive Plan Concepts and is in TIP	Supports Land Use Plan Concepts / Other Plans	Not Addressed in Other Plans / Inconsistent with Some Plans	Inconsistent with Comprehensive Plans / Other Plans
Connectivity / Continuity	Provides Significant New Connections Between Key Areas in the Region	Provides Improved Connectivity Between Neighborhoods, Limited Impact to Neighborhood Integrity	Little Impact on Continuity / Connectivity	Isolated Route Provides Access to Growth Area, But No Through Connection or Reduced Connectivity
Consistency with Local Economic Development Activities	Would Directly Support / or is Strongly Consistent with Local Economic Development Activities	Moderately Consistent with Local Economic Development Activities	Not Addressed by Economic Development Activities	Inconsistent with Local Economic Development Activities

Table 1
Transportation System Improvement Prioritization Criteria

Assessment Perspective/ Measure of Effectiveness	Score / Definition			
	6	4	2	0
Engineering				
Safety	Project Targets Known High Accident Location	Project Targets Known Moderate Accident Location	Generally Safer Design Concept with No Identified Crash Problem, or Diverts Traffic from High / Moderate Crash Location	No Impact
Congestion Relief	Directly Mitigates Congestion in a Corridor Currently Severely Congested	Directly Mitigates Congestion in a Corridor Currently Moderately Congested or Forecasted to be Severely Congested	Directly Mitigates Congestion in Corridors Forecasted to be Moderately Congested	Limited/No Direct Impact on Corridor Congestion
Security	Significantly Enhances System Security, Flood Control and / or is Consistent with Security Plans	Moderately Enhances System Security and / or Flood Control Plans	Limited Enhancement to System Security and Flood Control Plans	Negative Effects on System Security and / or Is Detrimental to Flood Control / Security Plans

Table 1
Transportation System Improvement Prioritization Criteria

Assessment Perspective/ Measure of Effectiveness	Score / Definition			
	6	4	2	0
Environmental				
Level of Impact to VMT/VHT/Trip Generation	Positive Impact by Reducing Growth in VMT, VHT or Trips	Moderate Impact by Slightly Slowing the Increase in VMT, VHT and/or New Trips	Minimal Impact on Rate of Change in VMT, VHT and/or New Trips	No Impact/Increases VMT/VHT/New Trips
Air Quality Impacts	Significant Decrease in Transportation Emissions	Moderate Decrease in Transportation Emissions	Minimal Increase or Decrease in Transportation Emissions	Increase in Transportation Emissions
Impacts to Adjacent Built/Natural Environment	No/Few Impacts to Adjacent Homes, Businesses, Natural Features	Minimal Impacts to Adjacent Homes, Businesses, Natural Features	Moderate Level of Impacts to Adjacent Homes, Businesses, Natural Features	Significant Level of Impacts to Adjacent Homes, Businesses and/or Natural Features
Economic Impact	Project Would Result in Significant Improvement to Goods and People Movement/Tourism Enhancement	Supports Improvement to Movement of People and Goods/Tourism Enhancement	Project Supports Speculative/Temporary Opportunities	No Impact/Negative Impact
Cost	Low Cost (Locally) and Within the Transportation Budget Constraints	Moderate Local Cost/Within Transportation Budget Constraints	Moderate/High Cost, But Within the Transportation Budget Constraints	High Cost/Not within the Transportation Budget Constraints
Operations and Maintenance	High Maintenance Priority/Would Significantly Reduce Operations/Maintenance Costs	Moderate Maintenance Priority/Reduces Operations/Maintenance Costs	Neutral Affect on Operations/Maintenance Costs	Results in an Increase in Operations/Maintenance Costs

THE FORKS
Long Range Transportation Plan

Second Level Roadway Improvements Evaluated June 7, 2007

- Expansion Alternatives
- Systems Management Alternatives
- 1A - Issue / Alternative Identification

Figure 1

URS

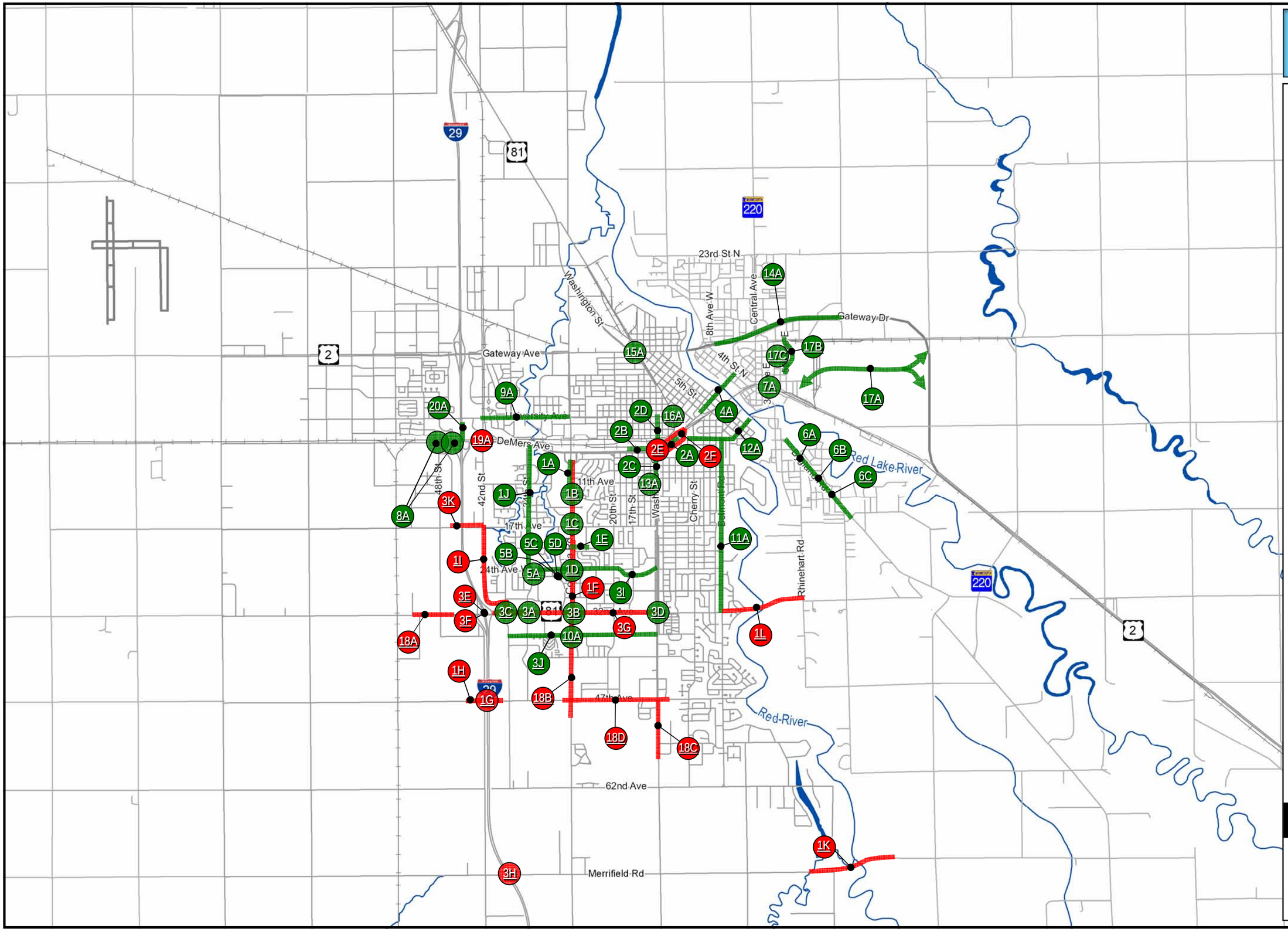

Table 2

Transportation System Improvement Prioritization Scoring, by Criteria and Project

URS

Issue / Alternative ID	Improvement Description	Social					Engineering			Environmental						Draft Total Score
		Local Public Support for Project	Multi-Modal Support	Consistency with Local / Regional Plans	Connectivity / Continuity	Consistency with Economic Development Activities	Safety	Congestion Relief	Security	VMT / VHT / Trip Generation	Air Quality	Built / Natural Environment Impacts	Economic Impact	Cost	Operations and Maintenance	
1 A	Columbia Rd, DeMers to 13th Ave: Add southbound lane	6	2	4	2	6	4	4	2	0	2	6	2	6	2	48
1 B	13th Ave S / Columbia Rd: Add Southbound dual left-turn lanes	6	0	2	2	6	4	6	2	0	2	4	2	6	2	44
1 C	17th Ave S / Columbia Rd: Add dual left-turn lanes for all approaches	6	0	2	2	6	4	6	2	2	2	4	2	6	2	46
1 D	24th Ave / Columbia: Dual left-turn lanes for SB approach	6	0	2	2	6	4	4	2	0	2	4	2	6	2	42
1 E	Extend 20th Ave South between Columbia Rd and 25th Street	4	2	4	4	2	4	6	2	0	2	4	2	6	2	44
1 F	Widen Columbia Road to 7-lanes between Demers Ave and 32nd Ave	2	6	2	2	2	0	6	2	0	2	2	2	2	2	32
1 G	Create 47th Ave S / I-29 Interchange	2	2	4	6	2	2	6	4	4	4	4	4	2	0	46
1 H	Create 47th Ave S Overpass of I-29	2	4	2	4	2	0	0	4	0	2	6	2	4	0	32
1 I	Widen 42nd St to 5-lanes between 17th Ave S to 32nd Ave S	6	6	4	2	6	2	4	2	0	2	6	4	4	2	50
1 J	Add left-turn lanes along 34th Street between DeMers Ave and 24th Ave S	4	0	2	2	2	2	4	2	0	2	4	0	6	2	32
1 K	Merrifield Road crossing of Red River	6	4	4	6	4	2	4	6	2	2	4	4	2	0	50
1 L	32nd Ave S crossing of Red River	4	4	2	6	4	2	6	6	4	4	4	6	2	0	54
2 A	Washington / DeMers: Add eastbound through lane	6	0	4	2	2	4	6	2	0	2	2	2	4	2	38
2 B	Washington / DeMers: Add 3rd lane for eastbound and westbound approaches	4	0	2	2	2	4	6	2	0	2	2	2	4	2	34
2 C	Washington / DeMers: Add 3rd lane for southbound traffic	2	4	2	2	2	4	6	2	0	2	0	2	2	2	32
2 D	Washington / DeMers: Add 3rd lane for northbound traffic	2	2	2	2	2	4	6	2	0	2	0	2	2	2	30
2 E	Washington / DeMers: Reconstruct as a single-point urban interchange	2	0	2	2	2	4	6	2	2	4	0	2	2	0	30
2 F	Washington / DeMers-4th Ave S: Reconstruct as a split-diamond interchange	2	0	2	2	2	4	6	2	2	4	0	2	2	0	30
3 A	32nd Ave / 34th St: Add dual left-turn lanes for WB approach	6	0	2	2	2	6	4	2	0	2	6	2	6	2	42
3 B	32nd Ave / Columbia Rd: Add dual left-turn lanes for NB and WB approaches	6	0	2	2	2	4	4	2	2	2	6	2	6	2	42
3 C	32nd Ave / 38th St: Add dual left-turn lanes for NB and SB approaches	6	0	2	2	2	4	4	2	0	2	6	2	6	2	40
3 D	32nd Ave / Washington St: Add eastbound and westbound through lanes	4	2	2	2	2	4	2	2	0	2	2	2	4	2	32
3 E	I-29 / 32nd Ave Interchange: Add loop ramps, relocate the NB on-ramp	6	0	4	2	2	2	2	2	0	2	6	2	2	0	32
3 F	I-29 / 32nd Ave interchange: Add loop ramps, NB on-ramp relocated to 42nd St	4	0	2	2	2	2	2	2	0	2	6	2	2	0	28
3 G	32nd Ave, I-29 to Washington St: Widen to 7-lanes	6	2	4	2	2	0	4	2	2	2	4	2	2	2	36
3 H	Merrifield Rd / I-29 Interchange	6	0	4	6	6	2	4	4	2	2	6	4	2	0	48
3 I	Restripe 24th Ave S as 3-Lane Roadway, Columbia to Washington	4	0	2	2	2	2	4	2	0	2	4	0	6	2	32
3 J	Widen 36th Ave S to 3-Lanes, extend east to Washington St and west to 38th St	6	6	2	4	2	2	4	2	0	2	6	2	4	0	42
3 K	17th Ave South overpass of I-29	6	4	4	4	6	2	4	4	4	4	6	6	4	0	58
4 A	GF-EGF CBDs: Remove signals and interconnect signal systems	6	2	4	2	6	4	4	2	2	2	6	2	6	2	50
5 A	24th Ave / 34th St: Reconstruct intersection as roundabout	4	2	2	2	2	2	2	2	0	2	4	2	6	2	34
5 B	29th St / 24th Ave: Channelize NB 29th St to eliminate Left-Turns (3/4 access)	2	2	2	2	2	6	2	2	0	2	4	2	6	2	36
5 C	29th St / 24th Ave: Remove south leg of intersection	2	2	2	2	2	6	2	2	0	2	4	2	6	2	36
5 D	29th St / 24th Ave: Signalize intersection	2	2	2	2	2	6	2	2	0	2	6	2	6	2	38
6 A	Add left-turn lanes at key Bygland Road intersections	6	0	2	2	2	2	2	2	0	2	6	2	6	2	36
6 B	Widen Bygland Road to a 3-lane cross-section	6	4	2	2	2	2	2	2	0	2	6	2	6	2	40
6 C	Consolidate minor street accesses along Bygland Road	2	2	2	0	2	2	2	2	0	2	4	2	6	2	30
7 A	2nd Ave NE grade separation with BNSF mainline (Central Spine)	6	4	4	4	2	2	2	6	0	2	4	4	2	0	42
8 A	48th / DeMers, SB I-29 / DeMers: Signalize	6	0	4	2	2	2	4	2	0	2	6	4	4	2	40
9 A	University Ave Calming Study Recommendations	0	6	4	2	2	2	0	2	0	2	6	0	6	2	34
10 A	Signalize 36th Ave S Columbia Rd intersection	6	2	2	2	2	2	0	2	0	2	6	2	6	2	36
11 A	Implement speed enforcement program along Belmont Rd corridor	6	0	2	2	2	2	0	2	0	2	6	0	6	2	32
12 A	Implement speed enforcement program along 4th Ave S corridor	6	0	2	2	2	2	0	2	0	2	6	0	6	2	32
13 A	11th Ave / 14th St: Remove on-street parking adjacent to intersection	2	0	2	2	2	6	0	2	0	2	4	0	6	2	30
14 A	Implement Gateway Drive Access Management Study Recommendations	6	0	6	4	6	6	0	2	0	2	4	2	4	2	44
15 A	Gateway Ave / 5th St and Rail Crossing: Additional striping and gates	6	0	2	2	2	2	0	2	0	2	6	0	6	2	32
16 A	University Ave BNSF Rail Crossing west of 9th St: Provide flashing signals	6	0	2	2	2	2	0	2	0	2	6	0	6	2	32
17 A	Improve access to plants from Highway 2 (East of Plant).	6	0	2	4	2	2	0	2	0	2	6	0	6	2	34
17 B	Alter 5th Ave NE to avoid crossing Strauss Park ball fields / parking lots	4	4	2	2	2	2	0	2	0	2	6	0	6	2	34
17 C	Redevelop Strauss Park to place parking lots west of 5th Ave NE	2	4	2	2	2	2	0	2	0	2	4	0	6	2	30
18 A	32nd Ave, 48th St to 55th St: Widen to 5-Lanes	6	6	4	2	6	2	4	2	0	2	6	2	4	2	48
18 B	Columbia Rd, 32nd Ave S to 50th Ave S: Widen to 5-Lanes	6	6	4	2	6	2	4	2	0	2	6	0	2	2	44
18 C	Washington St, 47th Ave to 55th Ave: Widen to 5-Lanes	6	6	4	2	6	2	4	2	0	2	6	0	2	2	44
18 D	47th Ave South between Columbia Rd and Washington St: Widen to 3-Lanes	6	6	2	2	2	2	4	2	0	2	6	0	4	2	40
19 A	Grade Separate 42nd Street from DeMers and BNSF Rail Line	4	2	4	4	4	4	0	4	0	2	4	2	2	0	36
20 A	Extend Northbound I-29 Accelleration lane from DeMers Interchange	6	0	2	2	2	2	6	2	0	2	6	0	6	2	38

Table 3

Transportation System Improvement Prioritization Scoring, Sorted from Highest to Lowest Draft Score

URS

Issue / Alternative ID	Improvement Description	Social					Engineering			Environmental						Draft Total Score
		Local Public Support for Project	Multi-Modal Support	Consistency with Local / Regional Plans	Connectivity / Continuity	Consistency with Economic Development Activities	Safety	Congestion Relief	Security	VMT / VHT / Trip Generation	Air Quality	Built / Natural Environment Impacts	Economic Impact	Cost	Operations and Maintenance	
3 K	17th Ave South overpass of I-29	6	4	4	4	6	2	4	4	4	4	6	6	4	0	58
1 L	32nd Ave S crossing of Red River	4	4	2	6	4	2	6	6	4	4	4	6	2	0	54
1 I	Widen 42nd St to 5-lanes between 17th Ave S to 32nd Ave S	6	6	4	2	6	2	4	2	0	2	6	4	4	2	50
1 K	Merrifield Road crossing of Red River	6	4	4	6	4	2	4	6	2	2	4	4	2	0	50
4 A	GF-EGF CBDs: Remove signals and interconnect signal systems	6	2	4	2	6	4	4	2	2	2	6	2	6	2	50
1 A	Columbia Rd, DeMers to 13th Ave: Add southbound lane	6	2	4	2	6	4	4	2	0	2	6	2	6	2	48
3 H	Merrifield Rd / I-29 Interchange	6	0	4	6	6	2	4	4	2	2	6	4	2	0	48
18 A	32nd Ave, 48th St to 55th St: Widen to 5-Lanes	6	6	4	2	6	2	4	2	0	2	6	2	4	2	48
1 C	17th Ave S / Columbia Rd: Add dual left-turn lanes for all approaches	6	0	2	2	6	4	6	2	2	2	4	2	6	2	46
1 G	Create 47th Ave S / I-29 Interchange	2	2	4	6	2	2	6	4	4	4	4	4	2	0	46
1 B	13th Ave S / Columbia Rd: Add Southbound dual left-turn lanes	6	0	2	2	6	4	6	2	0	2	4	2	6	2	44
1 E	Extend 20th Ave South between Columbia Rd and 25th Street	4	2	4	4	2	4	6	2	0	2	4	2	6	2	44
14 A	Implement Gateway Drive Access Management Study Recommendations	6	0	6	4	6	6	0	2	0	2	4	2	4	2	44
18 B	Columbia Rd, 32nd Ave S to 50th Ave S: Widen to 5-Lanes	6	6	4	2	6	2	4	2	0	2	6	0	2	2	44
18 C	Washington St, 47th Ave to 55th Ave: Widen to 5-Lanes	6	6	4	2	6	2	4	2	0	2	6	0	2	2	44
1 D	24th Ave / Columbia: Dual left-turn lanes for SB approach	6	0	2	2	6	4	4	2	0	2	4	2	6	2	42
3 A	32nd Ave / 34th St: Add dual left-turn lanes for WB approach	6	0	2	2	2	6	4	2	0	2	6	2	6	2	42
3 B	32nd Ave / Columbia Rd: Add dual left-turn lanes for NB and WB approaches	6	0	2	2	2	4	4	2	2	2	6	2	6	2	42
3 J	Widen 36th Ave S to 3-Lanes, extend east to Washington St and west to 38th St	6	6	2	4	2	2	4	2	0	2	6	2	4	0	42
7 A	2nd Ave NE grade separation with BNSF mainline (Central Spine)	6	4	4	4	2	2	2	6	0	2	4	4	2	0	42
3 C	32nd Ave / 38th St: Add dual left-turn lanes for NB and SB approaches	6	0	2	2	2	4	4	2	0	2	6	2	6	2	40
6 B	Widen Bygland Road to a 3-lane cross-section	6	4	2	2	2	2	2	2	0	2	6	2	6	2	40
8 A	48th / DeMers, SB I-29 / DeMers: Signalize	6	0	4	2	2	2	4	2	0	2	6	4	4	2	40
18 D	47th Ave South between Columbia Rd and Washington St: Widen to 3-Lanes	6	6	2	2	2	2	4	2	0	2	6	0	4	2	40
2 A	Washington / DeMers: Add eastbound through lane	6	0	4	2	2	4	6	2	0	2	2	2	4	2	38
5 D	29th St / 24th Ave: Signalize intersection	2	2	2	2	2	6	2	2	0	2	6	2	6	2	38
20 A	Extend Northbound I-29 Accelleration lane from DeMers Interchange	6	0	2	2	2	2	6	2	0	2	6	0	6	2	38
3 G	32nd Ave, I-29 to Washington St: Widen to 7-lanes	6	2	4	2	2	0	4	2	2	2	4	2	2	2	36
5 B	29th St / 24th Ave: Channelize NB 29th St to eliminate Left-Turns (3/4 access)	2	2	2	2	2	6	2	2	0	2	4	2	6	2	36
5 C	29th St / 24th Ave: Remove south leg of intersection	2	2	2	2	2	6	2	2	0	2	4	2	6	2	36
6 A	Add left-turn lanes at key Bygland Road intersections	6	0	2	2	2	2	2	2	0	2	6	2	6	2	36
10 A	Signalize 36th Ave S Columbia Rd intersection	6	2	2	2	2	2	0	2	0	2	6	2	6	2	36
19 A	Grade Separate 42nd Street from DeMers and BNSF Rail Line	4	2	4	4	4	4	0	4	0	2	4	2	2	0	36
2 B	Washington / DeMers: Add 3rd lane for eastbound and westbound approaches	4	0	2	2	2	4	6	2	0	2	2	2	4	2	34
5 A	24th Ave / 34th St: Reconstruct intersection as roundabout	4	2	2	2	2	2	2	2	0	2	4	2	6	2	34
9 A	University Ave Calming Study Recommendations	0	6	4	2	2	2	0	2	0	2	6	0	6	2	34
17 A	Improve access to plants from Highway 2 (East of Plant).	6	0	2	4	2	2	0	2	0	2	6	0	6	2	34
17 B	Alter 5th Ave NE to avoid crossing Strauss Park ball fields / parking lots	4	4	2	2	2	2	0	2	0	2	6	0	6	2	34
1 F	Widen Columbia Road to 7-lanes between Demers Ave and 32nd Ave	2	6	2	2	2	0	6	2	0	2	2	2	2	2	32
1 H	Create 47th Ave S Overpass of I-29	2	4	2	4	2	0	0	4	0	2	6	2	4	0	32
1 J	Add left-turn lanes along 34th Street between DeMers Ave and 24th Ave S	4	0	2	2	2	2	4	2	0	2	4	0	6	2	32
2 C	Washington / DeMers: Add 3rd lane for southbound traffic	2	4	2	2	2	4	6	2	0	2	0	2	2	2	32
3 D	32nd Ave / Washington St: Add eastbound and westbound through lanes	4	2	2	2	2	4	2	2	0	2	2	2	4	2	32
3 E	I-29 / 32nd Ave Interchange: Add loop ramps, relocate the NB on-ramp	6	0	4	2	2	2	2	2	0	2	6	2	2	0	32
3 I	Restripe 24th Ave S as 3-Lane Roadway, Columbia to Washington	4	0	2	2	2	2	4	2	0	2	4	0	6	2	32
11 A	Implement speed enforcement program along Belmont Rd corridor	6	0	2	2	2	2	0	2	0	2	6	0	6	2	32
12 A	Implement speed enforcement program along 4th Ave S corridor	6	0	2	2	2	2	0	2	0	2	6	0	6	2	32
15 A	Gateway Ave / 5th St and Rail Crossing: Additional striping and gates	6	0	2	2	2	2	0	2	0	2	6	0	6	2	32
16 A	University Ave BNSF Rail Crossing west of 9th St: Provide flashing signals	6	0	2	2	2	2	0	2	0	2	6	0	6	2	32
2 D	Washington / DeMers: Add 3rd lane for northbound traffic	2	2	2	2	2	4	6	2	0	2	0	2	2	2	30
2 E	Washington / DeMers: Reconstruct as a single-point urban interchange	2	0	2	2	2	4	6	2	2	4	0	2	2	0	30
2 F	Washington / DeMers-4th Ave S: Reconstruct as a split-diamond interchange	2	0	2	2	2	4	6	2	2	4	0	2	2	0	30
6 C	Consolidate minor street accesses along Bygland Road	2	2	2	0	2	2	2	2	0	2	4	2	6	2	30
13 A	11th Ave / 14th St: Remove on-street parking adjacent to intersection	2	0	2	2	2	6	0	2	0	2	4	0	6	2	30
17 C	Redevelop Strauss Park to place parking lots west of 5th Ave NE	2	4	2	2	2	2	0	2	0	2	4	0	6	2	30
3 F	I-29 / 32nd Ave interchange: Add loop ramps, NB on-ramp relocated to 42nd St	4	0	2	2	2	2	2	2	0	2	6	2	2	0	28

MEMORANDUM

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To: **Earl Haugen**
Grand Forks – East Grand Forks MPO TAC

Date: June 15, 2007

Subject: **June 20 TAC Meeting Material:**
Updated Prioritization Scoring and Example Weighting

In preparation of our Wednesday, June 20 special workshop, this memorandum presents the draft prioritization scoring organized in a format that will help lead our discussion at the workshop. Furthermore, we have included an example prioritization weighting scheme, where some criteria are given more weight than the others. We have also made some adjustments to the scoring, based on comments received at the June 13 TAC meeting and in an attempt to be as consistent as possible across projects.

UPDATED SCORING FOR MAJOR ISSUES / PROJECTS

Table 1 presents the draft prioritization scoring for those areas / corridors where we are considering multiple types of improvements. These are the locations where we will likely spend the most time on Wednesday, as we will need to narrow down the multiple alternatives at each location. Where applicable, the improvements have been organized into three categories: transportation system management level improvements, expansion improvements, and adjacent corridor improvements. For instance, in the Columbia Road corridor the selected improvement(s) will likely need to include either a set of TSM improvements (i.e., added turn lanes at 13th Ave S, 17th Ave S and 24th Ave S) or a more wide-spread corridor expansion (i.e., widening the corridor to 7-lanes). The improvements to adjacent corridors would complement either selected type of improvement. Thus, for those corridors like Columbia Road with multiple TSM improvements, the score for the combined set of TSM improvements has also been presented.

EXAMPLE WEIGHTED SCORING

There were several questions and comments about the prioritization screening at Wednesday's TAC meeting. One comment in particular was that these evaluation criteria were not all necessarily equal, and that there was a desire that some of the criteria be given some more weight than others. While different sectors of the community will have different priority criteria (e.g., for some individuals, environmental concerns or air quality may outweigh congestion relief concerns), the three categories that seemed to be mentioned the most by committee members were cost, safety and congestion relief. Additional evaluation criteria were mentioned, but only these three factors were including in this "for instance" example, in an effort to avoid diluting the weighting too much. For each project, the score for these three criteria were given twice the

weight / score / percentage of the total pot than the other 11 criteria.

As we have stressed throughout the alternative analysis phase, that the projects with the highest scores are not necessarily the ones that will be selected. The prioritization exercise is intended to focus on how each project meets the overall Plan goals and objectives in relation to others. Just because a project scores high does not mean it is the right one to select. However, the scoring could very well be used in resolving debates on qualitative topics that could come up through the continued assessment.

The example weighted scoring scheme is presented in Table 2. Note that for each criterion, the factor weights and percentage total are presented in the bottom two rows.

ACTION REQUESTED

Please review the information included in this memorandum in anticipation of the Wednesday, June 20 workshop. The information in Tables 1 and 2 is presented in a similar fashion to how we will discuss it in the workshop. The scoring is not "final" so if there are particular scores that you have questions about, or disagree with, please bring them up at the meeting or contact us ahead of time. Also note that the issues with a single alternative (not included in Tables 1 and 2) have not been dropped, but will be addressed in comparison to other issues after a recommended alternative / set of alternatives has been developed for each of the issues addressed in Tables 1 and 2.

Please contact us if you have any questions.

Table 1

Transportation System Improvement Prioritization Scoring, by Issue with Multiple Alternatives

Issue	Alternative ID	Improvement Description	Social					Engineering					Environmental				Draft Total Score
			Local Public Support for Project	Multi-Modal Support	Consistency with Local / Regional Plans	Connectivity / Continuity	Consistency with Economic Development Activities	Safety	Congestion Relief	Security	Cost	Operations and Maintenance	VMT / VHT / Trip Generation	Air Quality	Built / Natural Environment Impacts	Economic Impact	
Columbia Road Congestion Relief																	
TSM Projects																	
	1 A	Columbia Rd, DeMers to 13th Ave: Add southbound lane	6	0	4	2	6	4	4	2	6	2	0	2	6	2	46
	1 C	17th Ave S / Columbia Rd: Add dual left-turn lanes for all approaches	6	0	2	2	6	4	6	2	6	2	2	2	4	2	46
	1 B	13th Ave S / Columbia Rd: Add Southbound dual left-turn lanes	6	0	2	2	6	4	4	2	6	2	0	2	4	2	42
	1 E	Extend 20th Ave South between Columbia Rd and 25th Street	4	2	4	4	2	4	4	2	6	2	0	2	4	2	42
	1 D	24th Ave / Columbia: Dual left-turn lanes for SB approach	6	0	2	2	6	4	4	2	6	2	0	2	4	2	42
		TSM Package Average															**44**
Expansion Projects																	
	1 F	Widen Columbia Road to 7-lanes between Demers Ave and 32nd Ave	2	0	2	2	2	0	4	2	2	2	0	2	2	2	24
Adjacent Corridors																	
	1 L	32nd Ave S crossing of Red River	4	4	2	6	4	2	4	6	2	0	4	4	4	6	52
	1 K	Merrifield Road crossing of Red River	6	4	4	6	4	2	4	6	2	0	2	2	4	4	50
	1 I	Widen 42nd St to 5-lanes between 17th Ave S to 32nd Ave S, extend current trail	6	6	4	2	6	2	4	2	4	2	0	2	6	4	50
	1 G	Create 47th Ave S / I-29 Interchange	2	2	4	6	2	2	4	4	2	0	4	4	4	4	44
	1 J	Add left-turn lanes along 34th Street between DeMers Ave and 24th Ave S	4	0	2	2	2	2	4	2	6	2	0	2	4	0	32
	1 H	Create 47th Ave S Overpass of I-29	2	4	2	4	2	0	0	4	2	0	0	2	6	2	30
Washington-DeMers Congestion Relief																	
TSM Projects																	
	2 A	Washington / DeMers: Add eastbound through lane	6	0	4	2	2	4	4	2	2	2	0	2	2	2	34
	2 B	Washington / DeMers: Add 3rd lane for eastbound and westbound approaches	4	0	2	2	2	4	4	2	2	2	0	2	2	2	30
	2 C	Washington / DeMers: Add 3rd lane for southbound traffic	2	2	2	2	2	4	4	2	2	2	0	2	0	2	28
	2 D	Washington / DeMers: Add 3rd lane for northbound traffic	2	2	2	2	2	4	4	2	2	2	0	2	0	2	28
		TSM Package Average (3 Through Lanes on All Approaches)															**30**
Expansion Projects																	
	2 E	Washington / DeMers: Reconstruct as a single-point urban interchange	2	0	2	2	2	4	6	2	2	0	2	4	0	2	30
	2 F	Washington / DeMers-4th Ave S: Reconstruct as a split-diamond interchange	2	0	2	2	2	4	6	2	2	0	2	4	0	2	30
32nd Avenue Congestion Relief																	
TSM Projects																	
	3 A	32nd Ave / 34th St: Add dual left-turn lanes for WB approach	6	0	2	2	2	6	4	2	6	2	0	2	6	2	42
	3 B	32nd Ave / Columbia Rd: Add dual left-turn lanes for NB and WB approaches	6	0	2	2	2	4	4	2	6	2	2	2	6	2	42
	3 C	32nd Ave / 38th St: Add dual left-turn lanes for NB and SB approaches	6	0	2	2	2	4	4	2	6	2	0	2	6	2	40
	3 D	32nd Ave / Washington St: Add eastbound and westbound through lanes	4	2	2	2	2	4	2	2	4	2	0	2	2	2	32
		TSM Package Average															**39**
Expansion Projects																	
	3 J	Widen 36th Ave S to 3-Lanes, extend east to Washington St and west to 38th St	6	6	2	4	2	2	4	2	4	0	0	2	6	2	42
	3 G	32nd Ave, I-29 to Washington St: Widen to 7-lanes	6	2	4	2	2	0	4	2	2	2	2	2	4	2	36
Adjacent Corridors																	
	3 K	17th Ave South overpass of I-29	6	4	4	4	6	2	4	4	2	0	4	4	6	6	56
	3 H	Merrifield Rd / I-29 Interchange	6	0	4	6	6	2	4	4	2	0	2	2	6	4	48
	3 E	I-29 / 32nd Ave Interchange: Add loop ramps, relocate the NB on-ramp	6	0	4	2	2	2	2	2	2	0	0	2	6	2	32
	3 I	Restripe 24th Ave S as 3-Lane Roadway, Columbia to Washington	4	0	2	2	2	2	4	2	6	2	0	2	4	0	32
	3 F	I-29 / 32nd Ave interchange: Add loop ramps, NB on-ramp relocated to 42nd St	4	0	2	2	2	2	2	2	2	0	0	2	6	2	28
24th Avenue Safety and Congestion Relief																	
	5 D	29th St / 24th Ave: Signalize intersection	2	2	2	2	2	6	2	2	6	2	0	2	6	2	38
	5 C	29th St / 24th Ave: Remove south leg of intersection	2	2	2	2	2	6	2	2	6	4	0	2	4	2	38
	5 B	29th St / 24th Ave: Channelize NB 29th St to eliminate Left-Turns (3/4 access)	2	2	2	2	2	6	2	2	6	2	0	2	4	2	36
	5 A	24th Ave / 34th St: Reconstruct intersection as roundabout	4	2	2	2	2	2	2	2	6	2	0	2	4	2	34
Bygland Road Congestion / Access																	
	6 B	Restripe Bygland Road as a 3-lane cross-section	6	2	2	2	2	2	2	2	6	2	0	2	6	2	38
	6 A	Add left-turn lanes at key Bygland Road intersections	6	2	2	2	2	2	2	2	6	2	0	2	6	2	38
	6 C	Consolidate minor street accesses along Bygland Road	2	2	2	0	2	2	2	2	6	2	0	2	4	2	30
Truck Traffic Related to East Grand Forks Potato and Sugar Beet Plants																	
	17 A	Improve access to plants from Highway 2 (East of Plant).	6	0	2	4	2	2	0	2	6	2	0	2	6	0	34
	17 B	Alter 5th Ave NE to avoid crossing Strauss Park ball fields / parking lots	4	4	2	2	2	2	0	2	6	2	0	2	6	0	34
	17 C	Redevelop Strauss Park to place parking lots west of 5th Ave NE	2	4	2	2	2	2	0	2	6	2	0	2	4	0	30
Future Congestion Along Current Rural, Two-Lane Roadways																	
	18 A	32nd Ave, 48th St to 55th St: Widen to 5-Lanes	6	6	4	2	6	2	4	2	2	2	0	2	6	2	46
	18 B	Columbia Rd, 32nd Ave S to 50th Ave S: Widen to 5-Lanes	6	6	4	2	6	2	4	2	2	2	0	2	6	2	46
	18 C	Washington St, 47th Ave to 55th Ave: Widen to 5-Lanes	6	6	4	2	6	2	4	2	2	2	0	2	6	2	46
	18 E	Central Ave: Widen to 4-lane divided north to 23rd St, 3-lanes from 23rd St to dike	6	6	4	2	4	2	4	2	2	2	0	2	6	2	44
	18 D	47th Ave South between Columbia Rd and Washington St: Widen to 3-Lanes	6	6	2	2	2	2	4	2	2	2	0	2	6	2	40

Table 2
Example Weighted Prioritization Scoring, by Issue
Double Weighted for Cost, Safety and Congestion Relief Categories

Issue	Alternative ID	Improvement Description	Social					Engineering					Environmental				Draft Total Score
			Local Public Support for Project	Multi-Modal Support	Consistency with Local / Regional Plans	Connectivity / Continuity	Consistency with Economic Development Activities	Safety	Congestion Relief	Security	Cost	Operations and Maintenance	VMT / VHT / Trip Generation	Air Quality	Built / Natural Environment Impacts	Economic Impact	
Columbia Road Congestion Relief																	
TSM Projects																	
	1 C	17th Ave S / Columbia Rd: Add dual left-turn lanes for all approaches	6	0	2	2	6	8	12	2	12	2	2	2	4	2	62
	1 A	Columbia Rd, DeMers to 13th Ave: Add southbound lane	6	0	4	2	6	8	8	2	12	2	0	2	6	2	60
	1 B	13th Ave S / Columbia Rd: Add Southbound dual left-turn lanes	6	0	2	2	6	8	8	2	12	2	0	2	4	2	56
	1 E	Extend 20th Ave South between Columbia Rd and 25th Street	4	2	4	4	2	8	8	2	12	2	0	2	4	2	56
	1 D	24th Ave / Columbia: Dual left-turn lanes for SB approach	6	0	2	2	6	8	8	2	12	2	0	2	4	2	56
		TSM Package Average															**57**
Expansion Projects																	
	1 F	Widen Columbia Road to 7-lanes between Demers Ave and 32nd Ave	2	0	2	2	2	0	8	2	4	2	0	2	2	2	30
Adjacent Corridors																	
	1 L	32nd Ave S crossing of Red River	4	4	2	6	4	4	8	6	4	0	4	4	4	6	60
	1 I	Widen 42nd St to 5-lanes between 17th Ave S to 32nd Ave S, extend current trail	6	6	4	2	6	4	8	2	8	2	0	2	6	4	60
	1 K	Merrifield Road crossing of Red River	6	4	4	6	4	4	8	6	4	0	2	2	4	4	58
	1 G	Create 47th Ave S / I-29 Interchange	2	2	4	6	2	4	8	4	4	0	4	4	4	4	52
	1 J	Add left-turn lanes along 34th Street between DeMers Ave and 24th Ave S	4	0	2	2	2	4	8	2	12	2	0	2	4	0	44
	1 H	Create 47th Ave S Overpass of I-29	2	4	2	4	2	0	0	4	4	0	0	2	6	2	32
Washington-DeMers Congestion Relief																	
TSM Projects																	
	2 A	Washington / DeMers: Add eastbound through lane	6	0	4	2	2	8	8	2	4	2	0	2	2	2	44
	2 B	Washington / DeMers: Add 3rd lane for eastbound and westbound approaches	4	0	2	2	2	8	8	2	4	2	0	2	2	2	40
	2 C	Washington / DeMers: Add 3rd lane for southbound traffic	2	2	2	2	2	8	8	2	4	2	0	2	0	2	38
	2 D	Washington / DeMers: Add 3rd lane for northbound traffic	2	2	2	2	2	8	8	2	4	2	0	2	0	2	38
		TSM Package Average (3 Through Lanes on All Approaches)															**40**
Expansion Projects																	
	2 E	Washington / DeMers: Reconstruct as a single-point urban interchange	2	0	2	2	2	8	12	2	4	0	2	4	0	2	42
	2 F	Washington / DeMers-4th Ave S: Reconstruct as a split-diamond interchange	2	0	2	2	2	8	12	2	4	0	2	4	0	2	42
32nd Avenue Congestion Relief																	
TSM Projects																	
	3 A	32nd Ave / 34th St: Add dual left-turn lanes for WB approach	6	0	2	2	2	12	8	2	12	2	0	2	6	2	58
	3 B	32nd Ave / Columbia Rd: Add dual left-turn lanes for NB and WB approaches	6	0	2	2	2	8	8	2	12	2	2	2	6	2	56
	3 C	32nd Ave / 38th St: Add dual left-turn lanes for NB and SB approaches	6	0	2	2	2	8	8	2	12	2	0	2	6	2	54
	3 D	32nd Ave / Washington St: Add eastbound and westbound through lanes	4	2	2	2	2	8	4	2	8	2	0	2	2	2	42
		TSM Package Average															**53**
Expansion Projects																	
	3 J	Widen 36th Ave S to 3-Lanes, extend east to Washington St and west to 38th St	6	6	2	4	2	4	8	2	8	0	0	2	6	2	52
	3 G	32nd Ave, I-29 to Washington St: Widen to 7-lanes	6	2	4	2	2	0	8	2	4	2	2	2	4	2	42
Adjacent Corridors																	
	3 K	17th Ave South overpass of I-29	6	4	4	4	6	4	8	4	4	0	4	4	6	6	64
	3 H	Merrifield Rd / I-29 Interchange	6	0	4	6	6	4	8	4	4	0	2	2	6	4	56
	3 I	Restripe 24th Ave S as 3-Lane Roadway, Columbia to Washington	4	0	2	2	2	4	8	2	12	2	0	2	4	0	44
	3 E	I-29 / 32nd Ave Interchange: Add loop ramps, relocate the NB on-ramp	6	0	4	2	2	4	4	2	4	0	0	2	6	2	38
	3 F	I-29 / 32nd Ave interchange: Add loop ramps, NB on-ramp relocated to 42nd St	4	0	2	2	2	4	4	2	4	0	0	2	6	2	34
24th Avenue Safety and Congestion Relief																	
	5 D	29th St / 24th Ave: Signalize intersection	2	2	2	2	2	12	4	2	12	2	0	2	6	2	52
	5 C	29th St / 24th Ave: Remove south leg of intersection	2	2	2	2	2	12	4	2	12	4	0	2	4	2	52
	5 B	29th St / 24th Ave: Channelize NB 29th St to eliminate Left-Turns (3/4 access)	2	2	2	2	2	12	4	2	12	2	0	2	4	2	50
	5 A	24th Ave / 34th St: Reconstruct intersection as roundabout	4	2	2	2	2	4	4	2	12	2	0	2	4	2	44
Bygland Road Congestion / Access																	
	6 B	Restripe Bygland Road as a 3-lane cross-section	6	2	2	2	2	4	4	2	12	2	0	2	6	2	48
	6 A	Add left-turn lanes at key Bygland Road intersections	6	2	2	2	2	4	4	2	12	2	0	2	6	2	48
	6 C	Consolidate minor street accesses along Bygland Road	2	2	2	0	2	4	4	2	12	2	0	2	4	2	40
Truck Traffic Related to East Grand Forks Potato and Sugar Beet Plants																	
	17 A	Improve access to plants from Highway 2 (East of Plant).	6	0	2	4	2	4	0	2	12	2	0	2	6	0	42
	17 B	Alter 5th Ave NE to avoid crossing Strauss Park ball fields / parking lots	4	4	2	2	2	4	0	2	12	2	0	2	6	0	42
	17 C	Redevelop Strauss Park to place parking lots west of 5th Ave NE	2	4	2	2	2	4	0	2	12	2	0	2	4	0	38
Future Congestion Along Current Rural, Two-Lane Roadways																	
	18 A	32nd Ave, 48th St to 55th St: Widen to 5-Lanes	6	6	4	2	6	4	8	2	4	2	0	2	6	2	54
	18 B	Columbia Rd, 32nd Ave S to 50th Ave S: Widen to 5-Lanes	6	6	4	2	6	4	8	2	4	2	0	2	6	2	54
	18 C	Washington St, 47th Ave to 55th Ave: Widen to 5-Lanes	6	6	4	2	6	4	8	2	4	2	0	2	6	2	54
	18 E	Central Ave: Widen to 4-lane divided north to 23rd St, 3-lanes from 23rd St to dike	6	6	4	2	4	4	8	2	4	2	0	2	6	2	52
	18 D	47th Ave South between Columbia Rd and Washington St: Widen to 3-Lanes	6	6	2	2	2	4	8	2	4	2	0	2	6	2	48
		Criterion Weight Factor	1.0	1.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0	1.0	1.0	1.0	1.0	1.0	
		Percentage of Total	5.9%	5.9%	5.9%	5.9%	5.9%	11.8%	11.8%	5.9%	11.8%	5.9%	5.9%	5.9%	5.9%	5.9%	100%

MEMORANDUM

Bill Troe, AICP
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To: **Grand Forks/East Grand Forks MPO TAC Members**

Date: July 23, 2007

Subject: **Preliminary 2035 Base Confirmed Project List Traffic Forecasts – Revised**

The purpose of this memorandum is to document 2035 traffic forecasts developed to reflect the "Base Confirmed" network scenario. The alternative analysis process to this point has reviewed the positive and negative impact associated with a wide range of potential improvement alternatives. Several recommended projects from the current 2030 Plan have been reconfirmed, meaning the projects provide some level of utility in addressing the issues they were intended to address, and still meet the plan goals and objectives. The projects included the Base Confirmed list include:

- 17th Avenue Overpass of I-29
- Merrifield Road Interchange with I-29
- Merrifield Road Crossing of the Red River
- 32nd Avenue South Crossing of the Red River

These projects are regionally significant projects, and provide alternate routes for regional travel not provided by the existing-plus-committed (E+C) network. As such, a separate set of forecasts has been developed to represent the Base Confirmed network scenario.

As with the previously distributed E+C project network scenario forecasts, the 2035 Base Confirmed network forecasts were developed based on review of output from the MPO's computer travel demand model, based on work by ATAC. The Base Confirmed scenario assumes the same level and allocation of future housing and employment as the E+C scenario. Thus, any differences in 2035 daily forecasts between the Base Confirmed and E+C are due solely to the differences in the roadway networks for each scenario. Thus, this model-based comparison provides us with a tool for evaluating the relative traffic benefits / impacts associated with the improvement projects included in the Base Confirmed network scenario.

The preliminary daily traffic forecasts associated with the 2035 Base Confirmed roadway network and the 2035 E+C roadway network are presented in Figure. As with the E+C forecasts, the Base Confirmed forecasts are based on review and analysis of travel model output, maintained by ATAC.

As shown in Figure 1, corridors with significant decreases in Base Confirmed network traffic levels compared to E+C traffic levels include:

- Columbia Road, DeMers Avenue to 24th Avenue: Decreases between 4,000 and 5,000 vehicles per day (vpd).
- 4th Avenue S, DeMers Ave to Belmont Rd: Decreases between 2,000 and 3,000 vpd.
- Point Bridge: Decrease of 6,800 vpd.
- 32nd Avenue, I-29 to Columbia Road: Decreases between 2,000 and 9,000 vpd.

Corridors with significant increases in Base Confirmed network traffic levels compared to E+C traffic levels include:

- 32nd Avenue, 20th Street to Belmont Road: Increases between 5,000 and 7,000 vpd.
- 42nd Street, DeMers Avenue to 32nd Avenue S: Increases between 2,000 and 4,000 vpd.
- Harley Road: Increases between 3,000 and 4,000 vpd.
- TH 220 / Mallory Bridge: Increases 4,000 vpd.

ACTION REQUESTED

Please review the information in this memorandum. Based on comments received during TAC review, the study team will make any adjustment to the forecasts. Based on the Base Confirmed results, the study team will continue developing alternatives packages to address the remaining issues and deficiencies. If you have any questions or comments about this memo, please contact Jason Carbee at 402-952-2506.

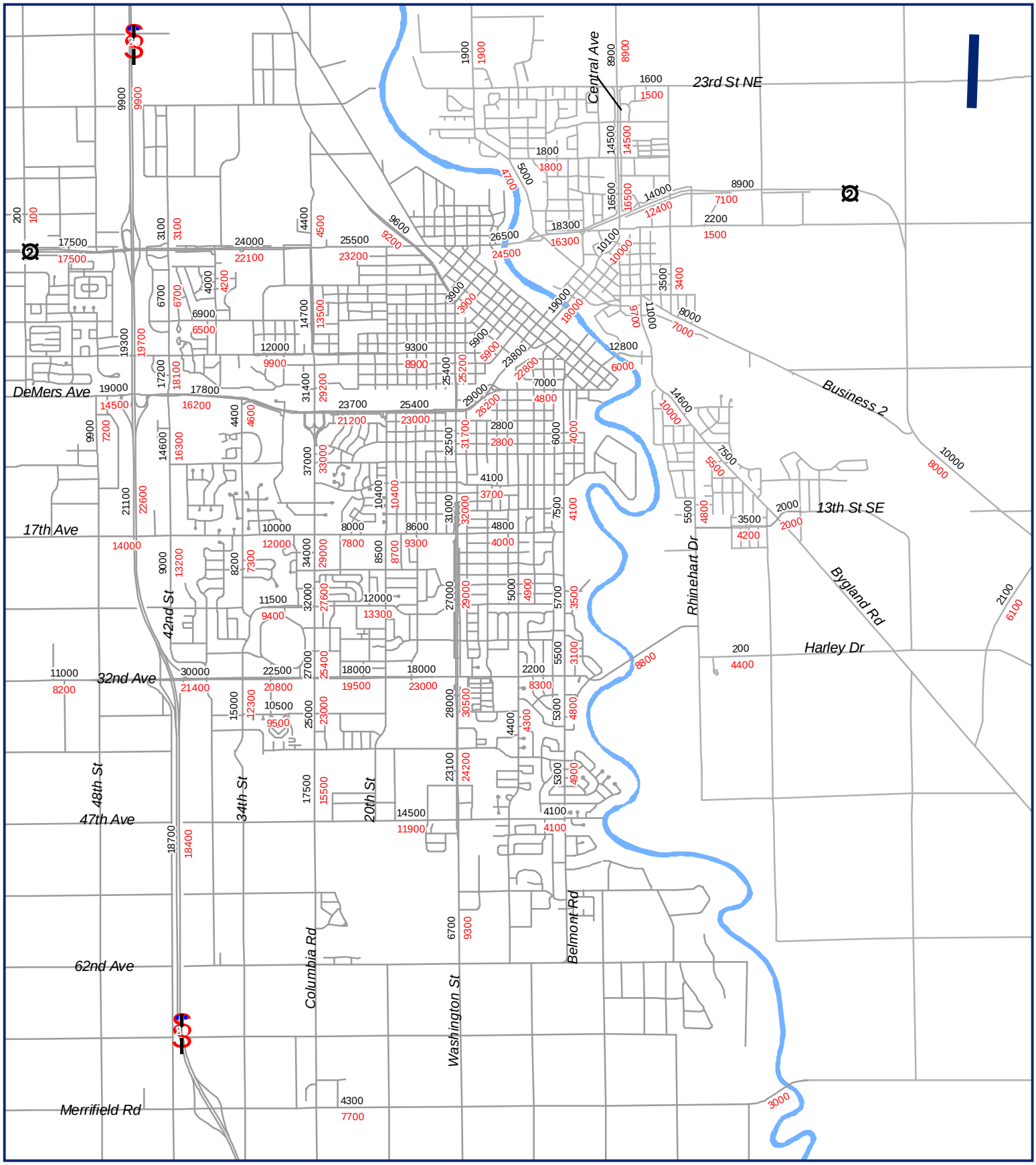

Figure 1: 2035 Daily Traffic Forecasts
Existing-Plus-Committed Network Compared to Base Confirmed Projects Network

1,000 - 2035 Existing-plus-Committed Daily Traffic Forecast

1,000 - 2035 Base Confirmed Daily Forecasts

MEMORANDUM

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To: **Earl Haugen**
Grand Forks – East Grand Forks MPO TAC

Date: August 1, 2007

Subject: **Base Confirmed Scenario Traffic Issues in Minnesota, Revised**

BACKGROUND

Upon review of the latest 2035 Base Confirmed network assignments from ATAC, URS staff have identified new issues related to changes / increases in traffic volumes associated with the addition of two new Red River crossings in the "Base Confirmed" network scenario. With the addition of river crossings at 32nd Avenue South and Merrifield Road, there are three locations in particular where increased traffic levels along rural roads and highways might warrant improvements for safety, travel delay and system continuity reasons. The purpose of this memorandum is to:

- Briefly describe the traffic issues on the Minnesota side associated with new crossings of the Red River.
- Present alternatives for addressing the issues identified.
- Solicit input from the TAC for any additional alternatives, revisions to the alternatives presented, or input related to these issues.

The memo is organized by each of the three issue locations, and includes potential improvement alternatives for the TAC to consider for each issue / location.

ACCESSIBILITY BETWEEN BYGLAND ROAD AND 32ND AVENUE BRIDGE ISSUE

There is a relatively high level of traffic that is forecasted to access the 32nd Avenue South Bridge from areas southeast of East Grand Forks. It is anticipated that approximately 3,000 vehicles per day (VPD) would make the movement between Bygland Road (CR 72) to the south and Harley Drive to the west. This movement is illustrated in Figure 1. As shown in Figure 1, this movement is relatively out-of-direction and requires two narrow-angle / skewed turns which would be a particularly difficult turn for heavy trucks to make. Three different alternatives were considered at this location:

- *Realignment of the Bygland Road – Harley Drive Intersection (Alternative 22A), including reconstruction of the existing gravel portions of Harley Drive*: This alternative would connect the 32nd Avenue Bridge to Bygland Road via Rhinehart Drive and Harley Drive. The alternative would also reconstruct the existing gravel portions of Harley Drive, for approximately ¾ of a mile west of the creek. This

alternative is illustrated in Figure 2.

- *A New East-West Arterial Connecting the 32nd Avenue Bridge to Bygland Road (Alternative 22B)*: This alternative would connect the 32nd Avenue Bridge to Bygland Road via a new, continuous corridor approximately 1/3 mile north of Harley Drive. This alternative is illustrated in Figure 3.
- *A New Arterial Connecting the 32nd Avenue Bridge to Harley Drive (Alternative 22C)*: This alternative would connect the 32nd Avenue Bridge to Harley Drive just east of 14th Avenue SE inside of the Flood Protection Levee. This alternative is illustrated in Figure 3.

Realignment of the Bygland Road – Harley Drive Intersection (Alternative 22A)

This alternative would improve the connection between Bygland Road / CR 72 and Harley Drive, assuming Harley Drive would be the main connection between the 32nd Avenue Bridge and Bygland Road. The range of improvement alternatives at this location is somewhat restricted by the flood control Levee and the diversion ditch just south of the current intersection. This alternative realigns Harley Drive and avoids any new levee crossings. The alternative also includes a left-turn lane for northwest-bound traffic from Bygland Road to Harley Drive, and improving the current gravel portions of Harley Drive to paved roadway.

A negative aspect of this improvement is that the eastern-most segment of this alternative would lie outside of the flood-protection levee. Additionally, due to its proximity to the levee, this corridor would be on the south fringe of planned development through 2035.

Alternative 22A is shown in Figure 2. The cost of this alternative in 2007 dollars would be approximately $700,000.

A New East-West Arterial Connecting the 32nd Avenue Bridge to Bygland Road (Alternative 22B)

This concept would develop a new east-west arterial roadway along an alignment approximately 1/3 mile north of Harley Drive. The arterial would connect with Bygland Road by transitioning to a northeast-southwest alignment, intersecting Bygland Road at a 90 degree angle approximately 500 feet inside the levee. Positive aspects associated with this alternative include:

- The entire alignment would be inside of the flood protection levee.
- Due to its offset from the levee, this corridor alignment would be more central to future development and could directly serve development on both sides of the road.

If included in the recommended plan, the alignment could be officially designated and reserved. As adjacent land redevelops from agriculture uses to residential and commercial uses, the corridor could be platted and constructed.

Alternative 22B is shown in Figure 3. The cost of this alternative in 2007 dollars would be

approximately $4,000,000.

A New Arterial Connecting the 32nd Avenue Bridge to Harley Drive (Alternative 22C)

This concept would develop an arterial roadway that would connect the 32nd Avenue Bridge at Rhinehart Drive to Harley Drive approximately 1000 feet east of 14th Avenue SE. The connection with Bygland Road would use the existing Harley Drive alignment, possibly including Alternative 22A for an improved Harley Drive connection to Bygland Road. Aspects associated with this alternative include:

- Most of the roadway would lie inside the flood protection levee. The Harley Drive connection to Bygland Road would be outside the flood protection area.
- Compared to the Harley Drive alignment, this alternative would have an improved offset from the levee allowing for a more central access from future redevelopment. However, Alternative 22C is less central to future development than Alternative 22B.
- Utilizes portions of the existing roadway system by keeping part of the corridor along the existing Harley Drive.

As with Alternative 22B, if included in the recommended plan the alignment could be officially designated, reserved and platted / constructed as adjacent land redevelops. This alternative assumes no additional improvements are made to Harley Drive.

Alternative 22C is shown in Figure 3. The cost of this alternative in 2007 dollars would be approximately $2,800,000.

BYGLAND ROAD – COUNTY ROAD 58 (CR 58) INTERSECTION ISSUE

As shown in Figure 1, traffic volumes along Bygland Road and CR 58 are forecasted to increase in the Base Confirmed network scenario due the desire to access both of the new river crossings from US Highway 2. The Base Confirmed network includes the following forecasts:

- Traffic volumes along Bygland Road east of CR 58 would increase from 1,100 VPD in the 2035 E+C network scenario to 5,500 VPD in the 2035 Base Confirmed network scenario.
- Traffic volumes along CR 58 south of Bygland Road would increase from 200 VPD in the 2035 E+C network scenario to 2,300 VPD in the 2035 Base Confirmed network scenario.

Add a Westbound Left-Turn Lane to the Bygland Road – County Road 58 Intersection (Alternative 22D)

Alternative 22D would add a westbound left-turn lane to the intersection, requiring a widening of Bygland Road adjacent to the intersection. The turn lane would separate left-turning traffic from through traffic on Bygland Road, improving safety and traffic flow in the corridor.

The southeast abutment of the Bygland Road bridge over the diversion channel is approximately

250 feet from the Bygland Road – CR 58 intersection. To avoid widening the bridge while adding a turn lane at the adjacent intersection, Bygland Road should be widened from its current centerline to minimize the needed taper distance between the end of the bridge and the intersection. This approach should accommodate the additional lane and prevent the need to widen the bridge. The location of the improvements associated with Alternative 22D is shown in Figure 2. The anticipated cost of this alternative in 2007 dollars would be approximately $200,000.

TRUNK HIGHWAY 220 – US HIGHWAY 2 (MALLORY) INTERSECTION ISSUE

As shown in Figure 1, traffic volumes along Trunk Highway 220 (TH 220) are forecasted to increase in the Base Confirmed network scenario due the desire to access the two new river crossings from US Highway 2. It is forecasted that traffic volumes along TH 220, including the Mallory Bridge, would increase from a forecasted 2035 traffic volume of 2,100 VPD in the existing-plus-committed (E+C) network scenario to 6,100 VPD in the base confirmed network scenario.

Add a Traffic Signal to the TH 220 - US 2 Intersection (Alternative 22E)

Alternative 22E would signalize the intersection and add crossing gates to the TH 220 crossing of the BNSF rail line, adjacent to the intersection. As a result of the increased volumes associated with the Base Confirmed network scenario, signalization of this intersection would likely be warranted by 2035. Three issues associated with Alternative22E are:

- The signal would be located a rural, isolated intersection along a high-speed corridor (US Highway 2). Without proper warning, such signalized intersections can be a safety issue. Providing advanced warning, including flashing advanced warning signs, will improve the safety associated with a signal in this location. This intersection treatment would be consistent with the current US 2 – Airport Drive intersection adjacent to the Grand Forks International Airport.
- The stop-bar for northeast-bound TH 220 traffic should be maintained in its current location, behind the BNSF rail line adjacent to US 2.
- Railroad gates should be installed at the current rail signal.

The elements associated with Alternative 22E are illustrated in Figure 4. The cost of this alternative in 2007 dollars would be approximately $300,000.

ACTION REQUESTED

Please review the information included in this memorandum and consider if there are any adjustments or additions. We anticipate discussing the memo at the August 8 TAC meeting.

THE FORKS
Long Range Transportation Plan

Base Confirmed Network Scenario: 2035 Traffic Issues

- Traffic Movement Issue
- 32nd Ave Bridge
- Levee
- 200 - 2035 E+C Daily Forecast
- 3,300 - 2035 Base Confirmed Draft Daily Forecast

Figure 1

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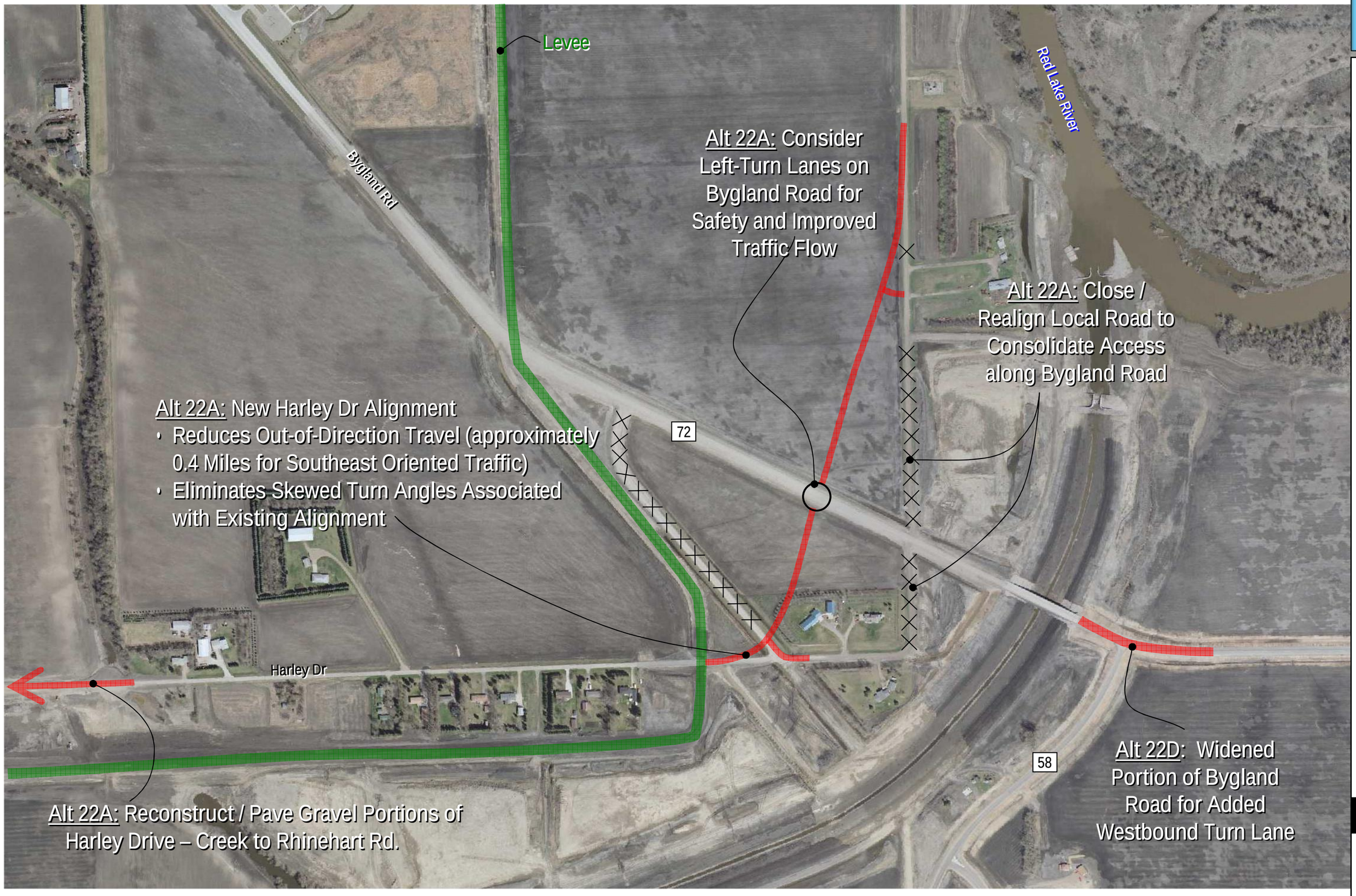
THE FORKS
Long Range Transportation Plan

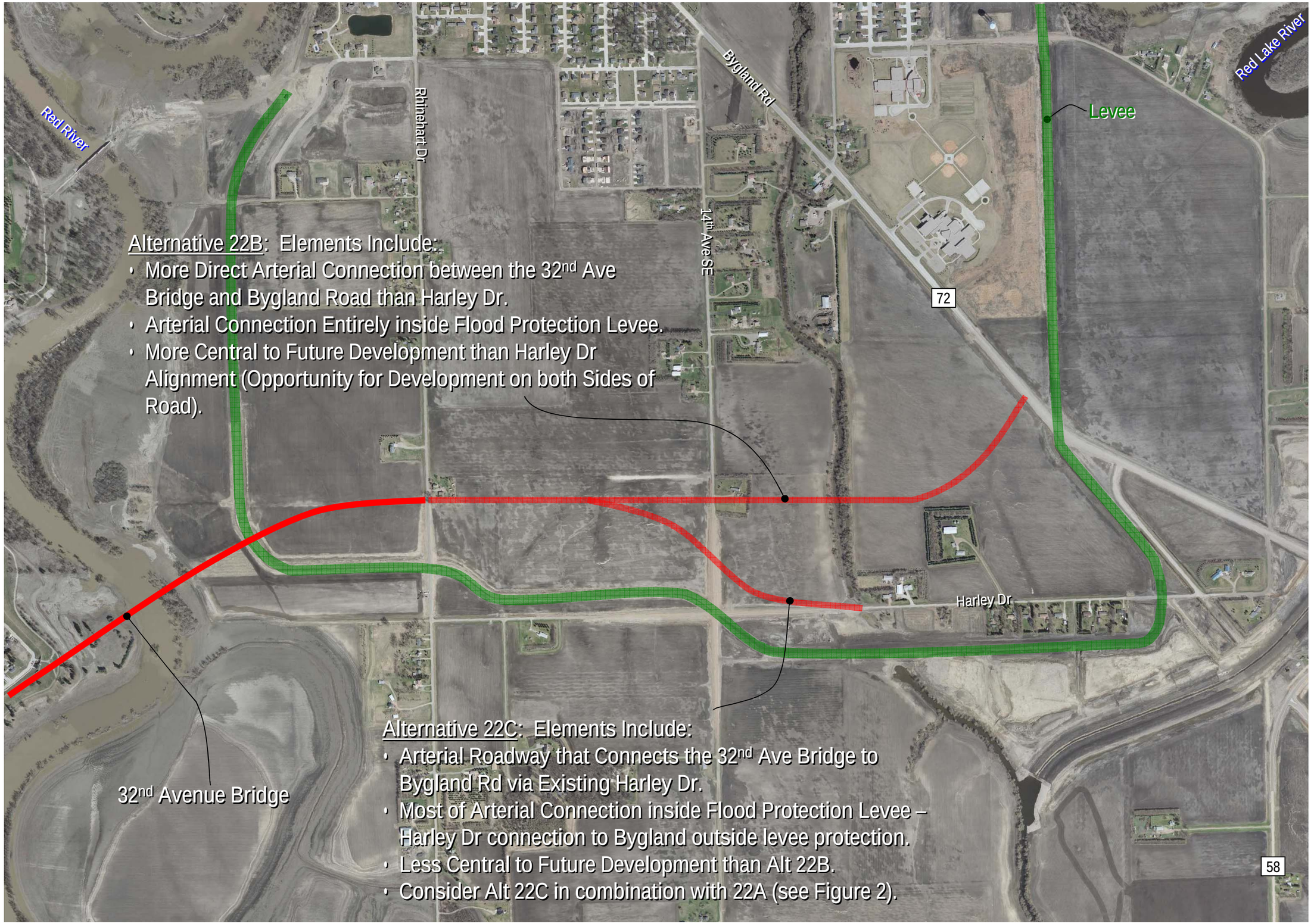
Base Confirmed Network Scenario: Alternatives 22A and 22D



- Alternative Improvements
- Road Removal with Alternative
- Levee

Figure 2

URS



THE FORKS
Long Range Transportation Plan

Base Confirmed Network Scenario: Alternatives 22B and 22C

- Alternative Improvements
- Road Removal with Alternative
- Levee

Figure 3

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Long Range Transportation Plan

Base Confirmed Network Scenario: Alternative 22E

- BNSF Line

Figure 4

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MEMORANDUM

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To: **Earl Haugen**
Grand Forks – East Grand Forks MPO TAC

Date: August 10, 2007

Subject: **Preliminary 2035 Base Confirmed Scenario Traffic Operations and Alternatives Adjustments**

As documented in previous memoranda, several recommended projects from the current 2030 Plan have been reconfirmed by this 2035 Plan Update, and will be included in the recommended 2035 Plan contingent upon final results of the funding analysis. The projects included the Base Confirmed list include:

- 17th Avenue Overpass of I-29
- Merrifield Road Interchange with I-29
- Merrifield Road Crossing of the Red River
- 32nd Avenue South Crossing of the Red River
- 42nd Street Widening, 17th Avenue South to 32nd Avenue South.

A July 23 memo to the TAC contained traffic forecasts developed for 2035 that reflect this Base Confirmed project roadway network. Evaluations of 2035 traffic operations have been performed based on the changes in travel volumes along key corridors with the Base Confirmed network in place. The results of the Base Confirmed Scenario traffic operations evaluations are summarized in this memorandum. For reference, the 2035 Base Confirmed Forecasts and 2035 Existing-plus-Committed (E+C) Forecasts are shown in Figure 1.

As traffic volumes and operations are forecasted to change with Base Confirmed improvements in place, there are some intersections that were identified as deficient in the 2035 E+C scenario that are not forecasted to be deficient in the 2035 Base Confirmed scenario. The memo also presents new or adjusted alternatives to address the changed traffic volumes / operations associated with the Base Confirmed improvements.

BASE CONFIRMED DEFICIENCIES

Several of the corridors with significant decreases in traffic are those corridors with identified 2035 traffic deficiencies in the E+C condition. As shown in Figure 1, those corridors with

significantly lower Base Confirmed traffic volumes compared to E+C traffic levels include:

- Columbia Road, DeMers Avenue to 24th Avenue
- 4th Avenue S, DeMers Ave to Belmont Rd
- Point Bridge
- 32nd Avenue, I-29 to Columbia Road

Several of the intersections identified as deficient in the E+C condition had significant levels of traffic reduction in the Base Confirmed Scenario. As a result, four of the intersections achieved an acceptable level of service in the Base Confirmed Scenario. Table 1 documents the forecasted 2035 Base Confirmed and E+C levels of service for all intersections identified as deficient in the 2035 E+C scenario.

TABLE 1. Forecasted Traffic Operations by Selected Intersections, 2035 Existing-plus-Committed and Base Confirmed Scenarios

Intersection	2035 E+C Level of Service	2035 Base Confirmed Level of Service
SB I-29 Ramps / DeMers Avenue	F*	E*
NB I-29 Ramps / DeMers Avenue	F*	F*
Washington Street / DeMers Avenue	F	F
5th Street / DeMers Avenue	E	E
4th Street / DeMers Avenue	F	E
Columbia Road / 13th Avenue	**E**	**C**
Columbia Road / 17th Avenue	F	F
Columbia Road / 24th Avenue	**D**	**C**
Columbia Road / 32nd Avenue	E	D
38th Street / 32nd Avenue	**D**	**B**
34th Street / 32nd Avenue	**E**	**C**

* - Unsignalized Intersections. Reported LOS based on worst-performing approaches. At both intersections, worst-performing approach is northbound off-ramp.

As indicated in Table 1 in **bold** font, the following four intersections are forecasted to have "deficient" peak hour operations in the 2035 E+C scenario, but are forecasted to have acceptable levels of delay in the 2035 Base Confirmed scenario:

- Columbia Road / 13th Avenue
- Columbia Road / 24th Avenue
- 38th Street / 32nd Avenue
- 34th Street / 32nd Avenue

This is not to say that improvements should be dropped from further consideration at these intersections. For instance, the intersection of 34th Street / 32nd Avenue has been identified as a

safety issue and geometric improvements should still be considered at this intersection. The intersection of 38th Street / 32nd Avenue will be influenced by event traffic generated by the Alerus Center (if 42nd Street is not realigned to the 32nd Ave / I-29 interchange), which is not reflected in the PM peak hour analysis completed for this plan update.

As noted in other recent memoranda, there are new issues that are forecasted to arise in some locations with the construction of the Base Confirmed projects. These corridors with the most significant increases in Base Confirmed network traffic levels compared to E+C traffic levels include:

- 42nd Street, DeMers Avenue to 32nd Avenue S.
- Harley Road.
- TH 220 / Mallory Bridge.

BASE CONFIRMED SCENARIO ALTERNATIVES ADJUSTMENTS

Specific alternatives that need to be considered / revised to address these changed / higher traffic volumes include:

- *42nd Street / 17th Avenue Intersection improvements*. Additional turn lanes should be included at the intersection of 42nd Street / 17th Avenue when the 17th Avenue overpass is completed. The recommended improvements are to add left-turn lanes to every approach, and right-turn lanes to the southbound, eastbound and westbound approaches of the intersection. There are no significant anticipated impacts associated with this improvement. These adjustments will not be a separate alternative, but will instead be added to the 17th Avenue Overpass concept (Alternative 3K). This adjustment to Alternative 3K is illustrated in Figure 2.
- *Columbia Road / 17th Avenue Intersection improvements*. Traffic along Columbia Road is forecasted to decrease, while traffic on 17th Avenue west of Columbia Road is forecasted to increase in the Base Confirmed Scenario, compared to the 2035 E+C scenario. To achieve LOS "C" with the adjusted Base Confirmed traffic volumes, two different alternatives were re-evaluated:
  - Alternative 1C, adding dual left-turns to all approaches, is forecasted to achieve LOS "D" with the 2035 Base Confirmed Volumes. In combination with Alternative 1E, extending 20th Avenue South to connect 25th Street to Columbia Road, Alternative 1C would achieve LOS "C" in the 2035 Base Confirmed scenario. However, if the community's desire is to achieve LOS "C" at the intersection without connecting 20th Avenue South to Columbia Road, Alternative 1M would make the following adjustments to Alternative 1C and is forecasted to achieve LOS "C":
    - Add a second through lane to the eastbound approach
    - Converting the westbound right-turn lane to a shared through / right-turn lane.
    - Maintaining the dual left-turn lanes on all approaches

    Alternative 1M will require some additional right-of-way acquisition to the

property on the SW corner compared to Alternative 1C, but is expected to have minimal *additional* impacts compared to Alternative 1C. The second eastbound and westbound departure lanes were already part of the alternative (in place to accept the dual northbound and southbound turn lanes). This alternative is illustrated in Figure 3.

- The concept to widen Columbia Road to a 6-lane divided roadway is forecasted to provide LOS "C" at Columbia / 17th in the 2035 Base Confirmed scenario, if the concept includes adding right-turn lanes to the southbound, eastbound and northbound approaches of the intersection. This alternative would not require dual left-turn lanes at the intersection. This alternative is illustrated in Figure 4.
- A potential third improvement, Alternative 1N, would eliminate the need to add additional departure lanes to 17th Avenue, and as a result reduce the level of impacts associated with Alternative 1C, by adding right-turn lanes to the northbound, southbound and eastbound approaches. In combination with Alternative 1E, extending 20th Avenue South to connect 25th Street to Columbia Road, Alternative 1N would achieve LOS "D" in the 2035 Base Confirmed scenario. This alternative is illustrated in Figure 5.

- *38th Street / 32nd Avenue Intersection improvements*. As noted above, the Base Confirmed condition diverts sufficient traffic from the intersection of 38th Street / 32nd Avenue so that the intersection operates at LOS "C" in the 2035 PM peak without any improvements. However, Alternative 3N was developed to be consistent with the recommendations of the Alerus Center Traffic Study, which recommended adding an extended right-turn lane at the intersection. The study also recommended converting the center, through lane to a shared through/left-turn lane during events. This adjustment to Alternative 3K is illustrated in Figure 6. Note that these improvements would not be made to the intersection if Alternative 3 M, the extension / realignment of 42nd Street were completed.

Separate Base Confirmed scenario alternatives adjustments were also documented in two recent memos to the TAC: *Base Confirmed Scenario Traffic Issues in Minnesota* (August 1) and *Washington Street – DeMers Avenue Intersection Alternatives Summary* (August 2).

SUMMARY

Please review the information included in the memorandum, as it provides an overview of the Base Confirmed scenario traffic operations results and any adjustments to the alternatives being considered as a result of the Base Confirmed operations review. The alternatives improvement packages currently being developed assume that these Base Confirmed network improvements are in place.

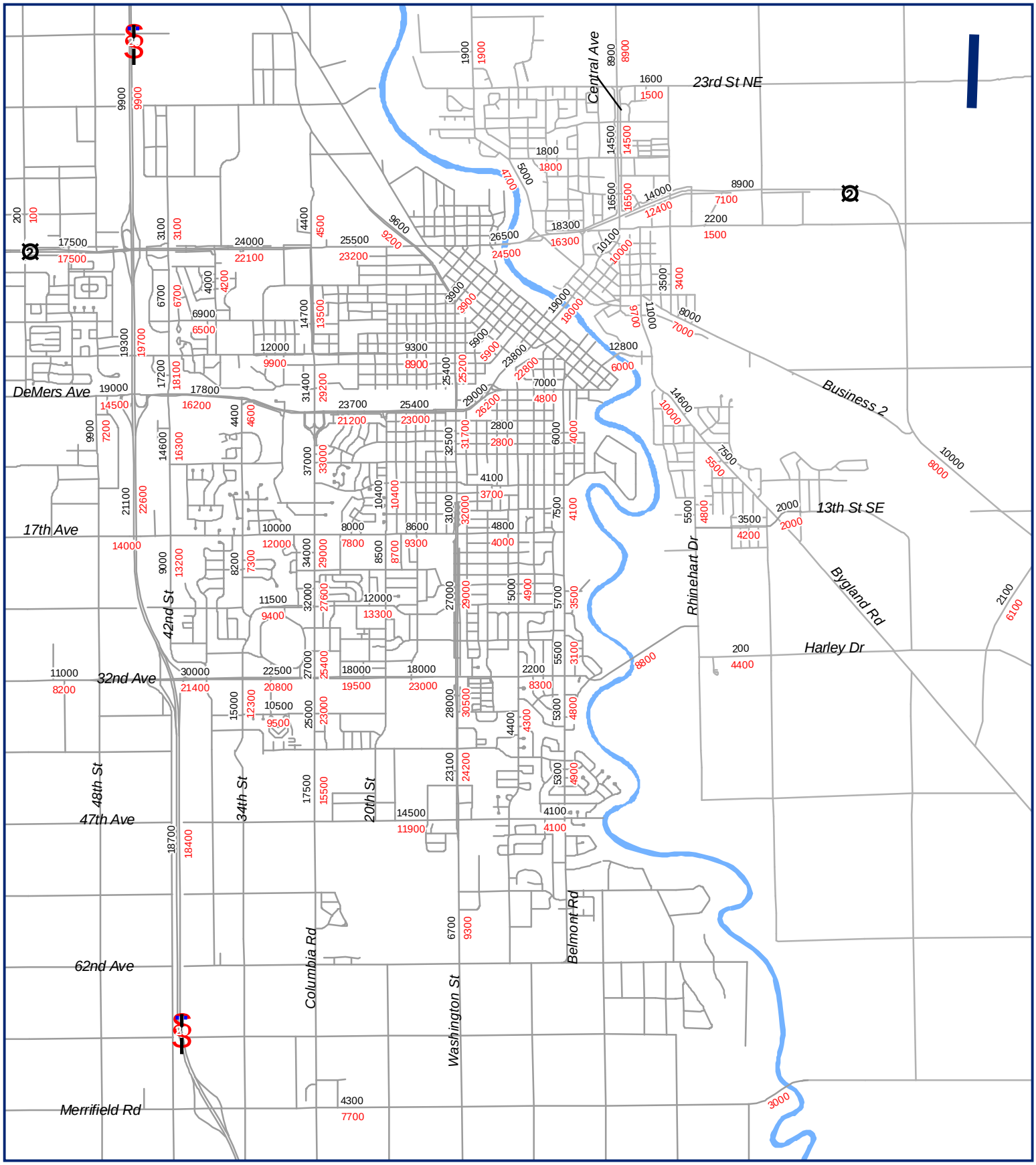

Figure 1: 2035 Daily Traffic Forecasts
Existing-Plus-Committed Network Compared to Base Confirmed Projects Network

1,000 - 2035 Existing-plus-Committed Daily Traffic Forecast

1,000 - 2035 Base Confirmed Daily Forecasts

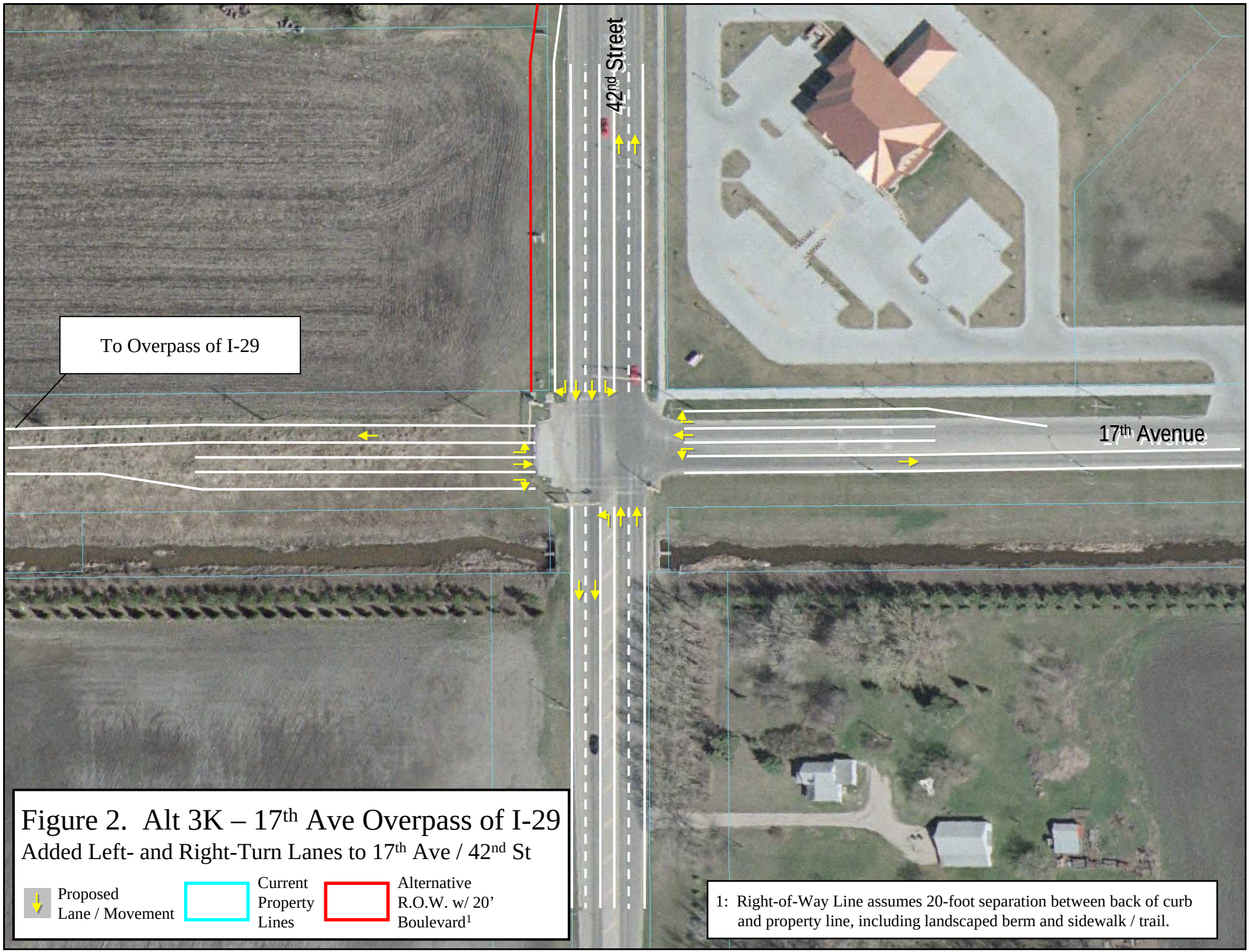

Figure 2. Alt 3K – 17th Ave Overpass of I-29

Added Left- and Right-Turn Lanes to 17th Ave / 42nd St

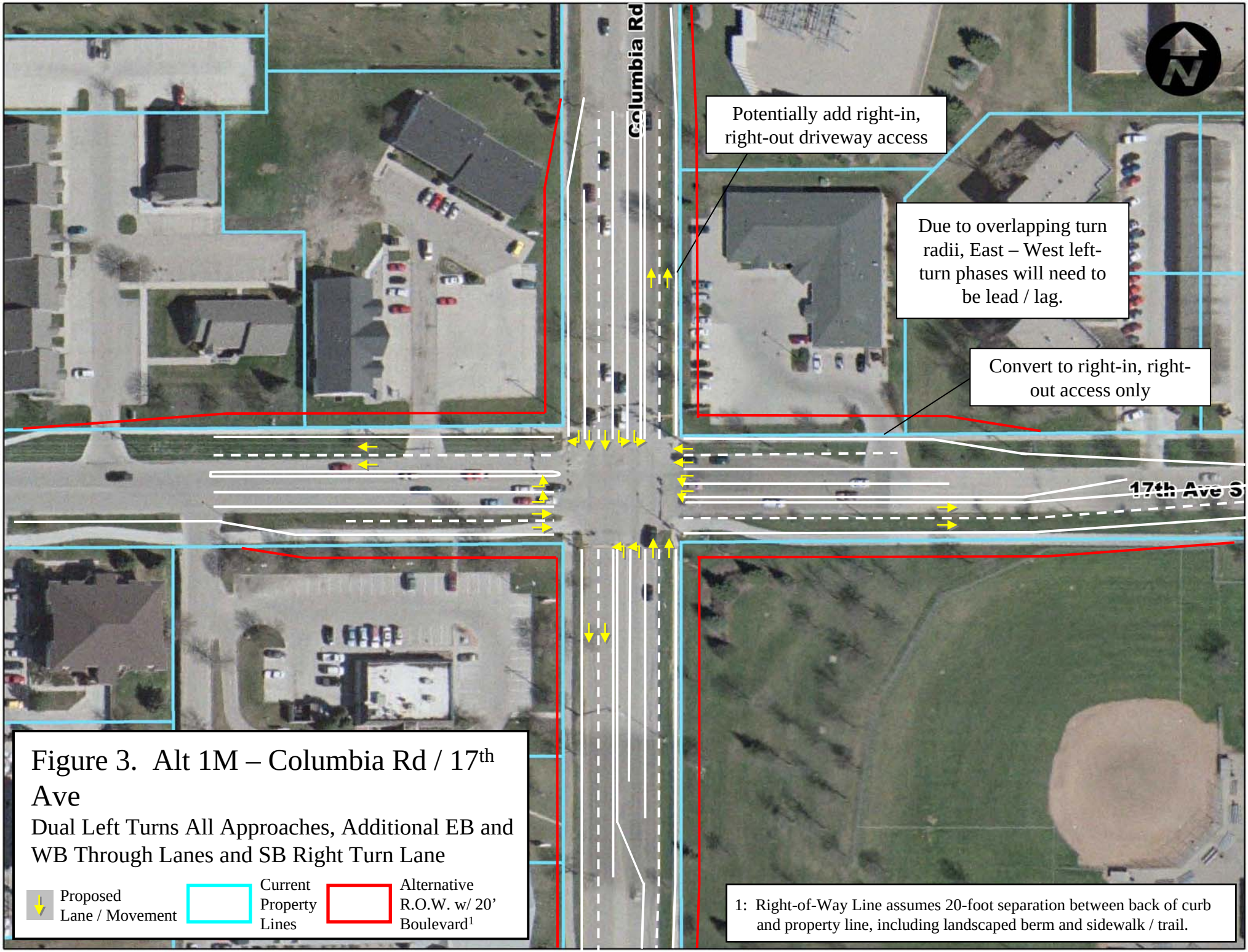

Figure 3. Alt 1M – Columbia Rd / 17th Ave

Dual Left Turns All Approaches, Additional EB and WB Through Lanes and SB Right Turn Lane

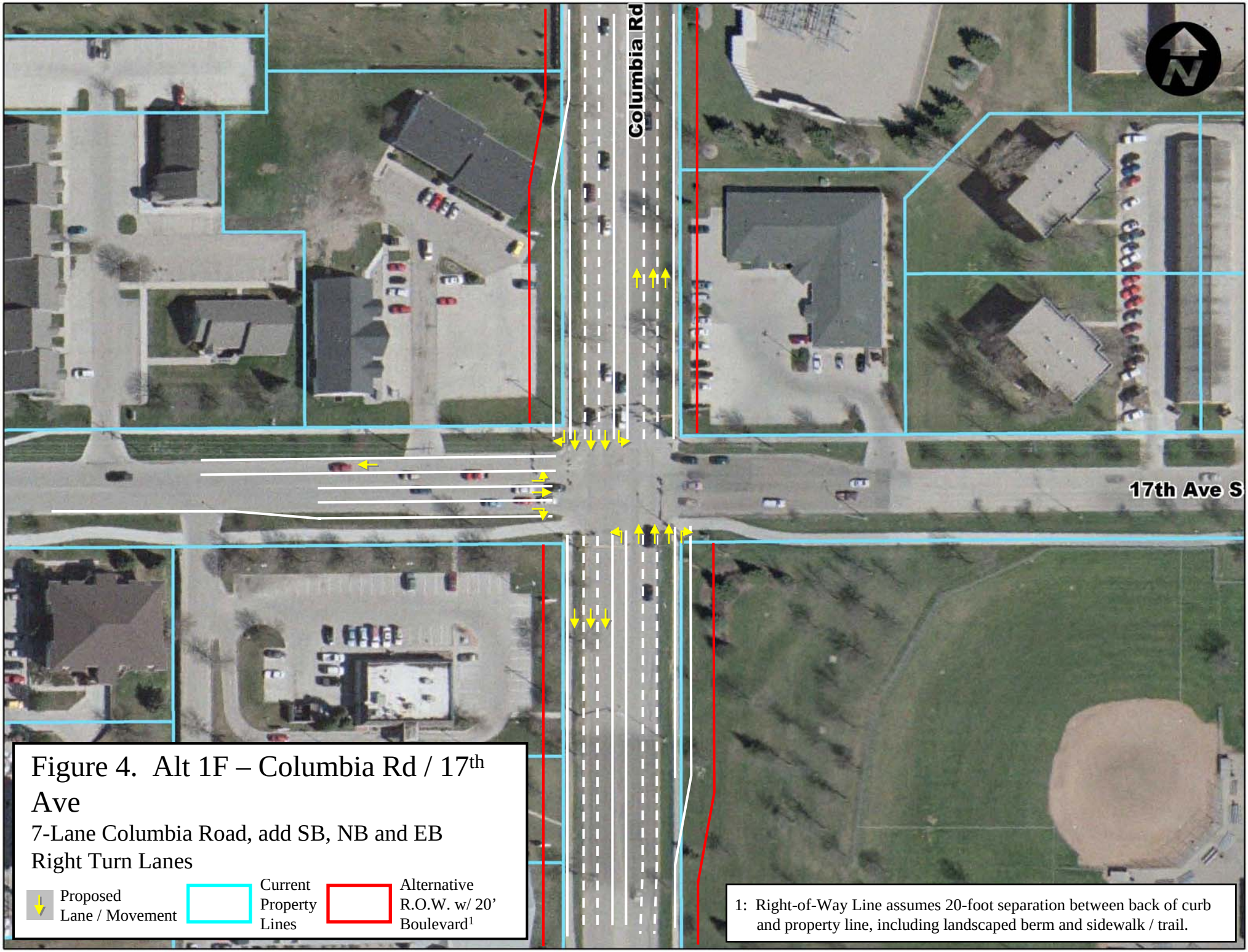

Figure 4. Alt 1F – Columbia Rd / 17th Ave

7-Lane Columbia Road, add SB, NB and EB Right Turn Lanes

Proposed Lane / Movement

Current Property Lines

Alternative R.O.W. w/ 20' Boulevard[1]

1: Right-of-Way Line assumes 20-foot separation between back of curb and property line, including landscaped berm and sidewalk / trail.

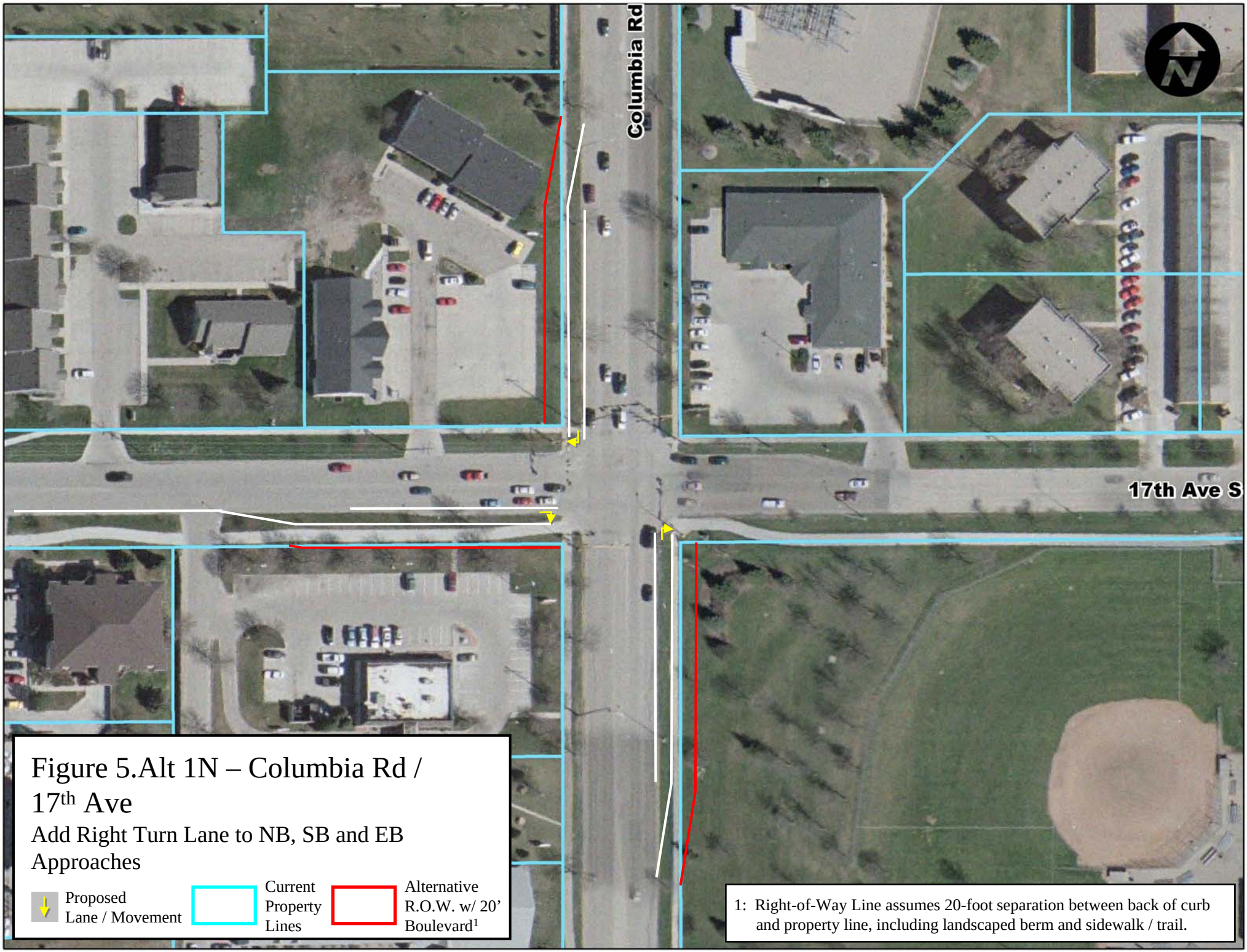

Figure 5.Alt 1N – Columbia Rd / 17th Ave

Add Right Turn Lane to NB, SB and EB Approaches

Proposed Lane / Movement

Current Property Lines

Alternative R.O.W. w/ 20' Boulevard[1]

1: Right-of-Way Line assumes 20-foot separation between back of curb and property line, including landscaped berm and sidewalk / trail.

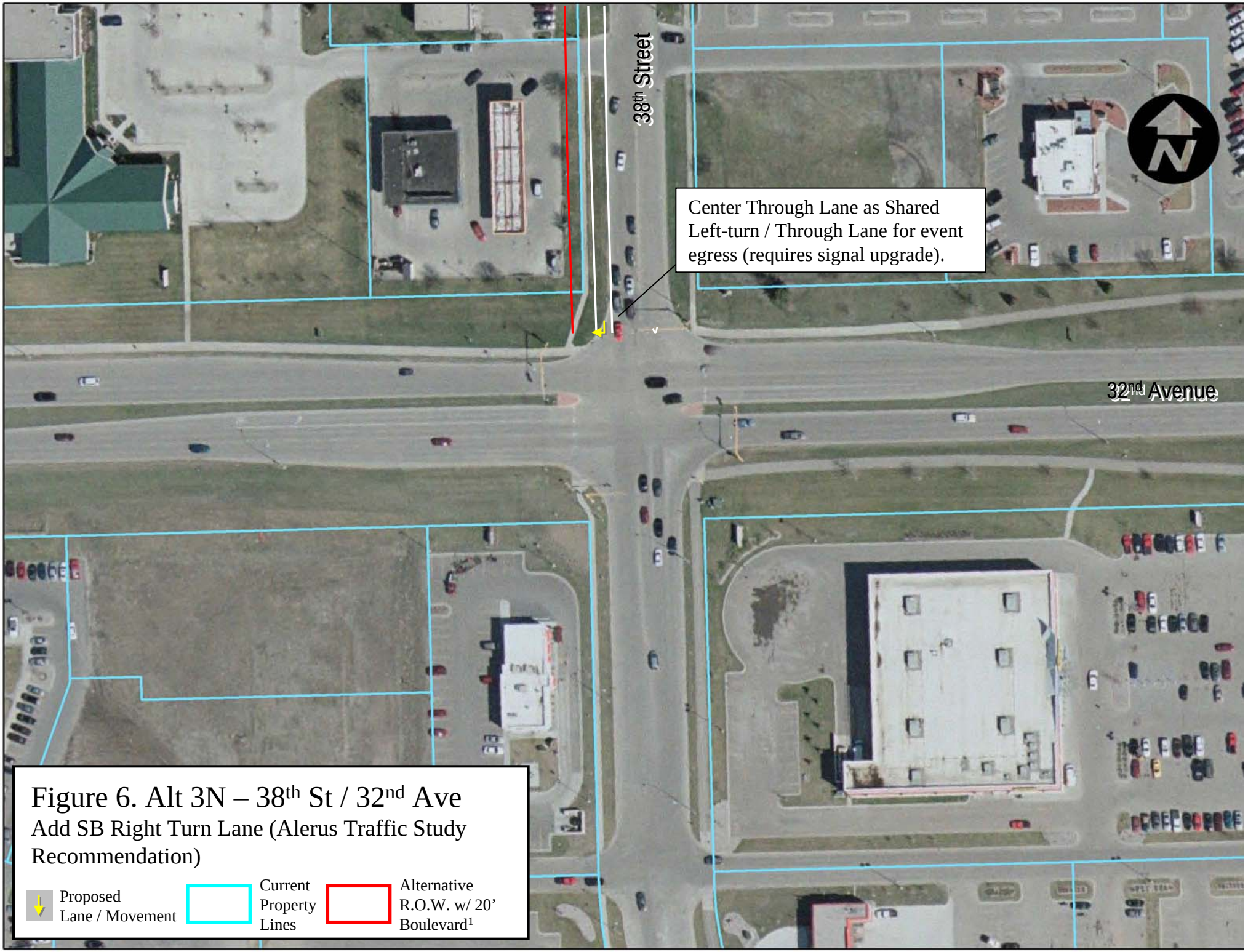

Figure 6. Alt 3N – 38th St / 32nd Ave

Add SB Right Turn Lane (Alerus Traffic Study Recommendation)

MEMORANDUM

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To: **Earl Haugen**
Grand Forks – East Grand Forks MPO TAC

Date: July 9, 2007

Subject: **Columbia Road Corridor Improvements**
Comparison of Expansion and TSM Right-of-Way Impacts

BACKGROUND

Based on discussion at our June 20 workshop, more information was requested on the level of impacts associated with the expansion and transportation system management (TSM) options for the Columbia Road corridor. The purpose of this memorandum is to document the potential impacts associated with either: 1) a widening to 7-lanes along Columbia Road between DeMers Avenue and 32nd Avenue S, or 2) adding dual left-turn lanes at key intersections.

This memorandum provides illustrations and a table that documents the potential right-of-way impacts associated with each set of alternative improvements. As a sensitivity analysis, two different right-of-way scenarios were considered for each improvement set:

- The first widening scenario assumed a 20-foot sidewalk setback on each side (consistent with City guidance). The sidewalk setback width refers to the distance to the back of the sidewalk or multi-use trail; in this case the back of the sidewalk would be 20 feet from the edge of pavement, and the remainder of the 20-foot-wide setback (between street and sidewalk) would be boulevard.
- The second widening scenario assumed a reduced 10-foot sidewalk setback.

SEVEN-LANE COLUMBIA ROAD WIDENING

The following planning assumptions were made in our evaluation of the 7-Lane expansion alternative:

- It was assumed that throughout the corridor, the widening maintained the current roadway centerline (i.e., widened equally to both sides of the current road).
- The assumed *pavement* width for the 7-lane Columbia Road cross-section was 92 feet, based on:
  - 14’ wide outside lanes (2 total)
  - 12’ wide middle and inside lanes (4 total)
  - 16’ wide median

Between DeMers Avenue and approximately 300 feet south of 24th Avenue, the current right-of-way width in the corridor is 100 feet; between 32nd Avenue and 300 feet south of 24th Avenue the right-of-way width is 150 feet. Thus, right-of-way would need to be acquired north of 24th Avenue in both widening scenarios. The following right-of-way widths were assumed with the 7-lane widening:

- In the first widening scenario, the assumed total right-of-way width for the 7-lane cross-section was 132 feet, including the pavement and a 20-foot sidewalk setback on each side (consistent with City guidance).
- The second widening scenario assumed that the total right-of-way width for the 7-lane cross-section was 112 feet, including a reduced 10-foot sidewalk setback.

The impacts associated with the 7-Lane widening alternative are illustrated in Figures 1 through 5.

TSM ALTERNATIVES PACKAGE

The TSM improvements include the following projects:

- Add an additional southbound lane between the DeMers Avenue on-ramp and 13th Avenue S
- Add southbound dual left-turn lanes at the 13th Avenue S intersection
- Add dual left-turn lanes to all approaches of the 17th Avenue S intersection
- Add southbound dual left-turn lanes at the 24th Avenue S intersection

As with the 7-lane widening, both 20' sidewalk setback and 10' sidewalk setback scenarios were considered. The right-of-way impacts associated with the TSM projects are illustrated in Figures 6 through 8.

Table 1 provides a summary of the impacts associated with each alternative and sidewalk setback scenario.

TABLE 1. Summary of Potential Impacts by Alternative Improvement Scenario

	7-Lane Widening		TSM	
Scenario	**20' Sidewalk Setback**	**10' Sidewalk Setback**	**20' Sidewalk Setback**	**10' Sidewalk Setback**
Businesses with Parking or Drive Through Impacts	6	3	3	0
Potential Acquisitions	2 Businesses, 13 Residences	1 Business, 3 Residences	1 Business	0
Park Impacts	0.65 Acres	0.3 Acres	0.25 Acres	0.05 Acres

SUMMARY

The right-of-way impacts documented in this memorandum are based on a planning-level evaluation, intended to provide order-of-magnitude estimates of the right-of-way impacts associated with both the 7-lane expansion alternative and the transportation system management (TSM) intersection widening alternative. The exact level of impacts will be refined as the selected alternative progresses from planning-level to design and implementation.

The information contained in this memorandum will be discussed at the Wednesday TAC meeting. In the mean time, if there are any questions or comments, please contact Jason at (402) 965-3499.

Columbia Rd Overpass
Kirkwood Dr
9th Ave S
Crescent Dr
4 Potential Residential Acquisitions
S Columbia Rd
11th Ave S
Legend
Parcels
7-Lane Columbia Rd R.O.W.
Reduced 10' Sidewalk Setback
7-Lane Columbia Rd R.O.W.
Standard 20' Sidewalk Setback
0
50
100
200 Feet
7-Lane Columbia Road
Widening from Centerline
Figure 1

13th Ave S

Parking Impacts

Commercial Drive Impact

S Columbia Rd

14th Ave S

14th Ave S

Parking Impacts

Knight Dr

Knight Dr

Potential Residential Acquisition with 20' Setback

7-Lane Columbia Road Widening from Centerline
Figure 2

Legend

- Parcels
- 7-Lane Columbia Rd R.O.W. Reduced 10' Sidewalk Setback
- 7-Lane Columbia Rd R.O.W. Standard 20' Sidewalk Setback

0 50 100 200 Feet

Potential Commercial Building Acquisition

Parking Impacts

Dual Northbound and Southbound Left-Turn Lanes Still Required for LOS "C" – Adds to Right-of-Way Width at 17th Ave

Widening into Park

17th Ave S

S Columbia Rd

19th Ave S

Legend

- Parcels
- 7-Lane Columbia Rd R.O.W. Reduced 10' Sidewalk Setback
- 7-Lane Columbia Rd R.O.W. Standard 20' Sidewalk Setback

0 50 100 200 Feet

7-Lane Columbia Road Widening from Centerline
Figure 3

20th Ave S

Cumberland Rd

Glenwood Dr

West entrance

Huntington Park Dr

S Columbia Rd

22nd Ave S

Potential Residential Acquisitions with 20' Setback

Impacts to Bank Drive Thru

Legend

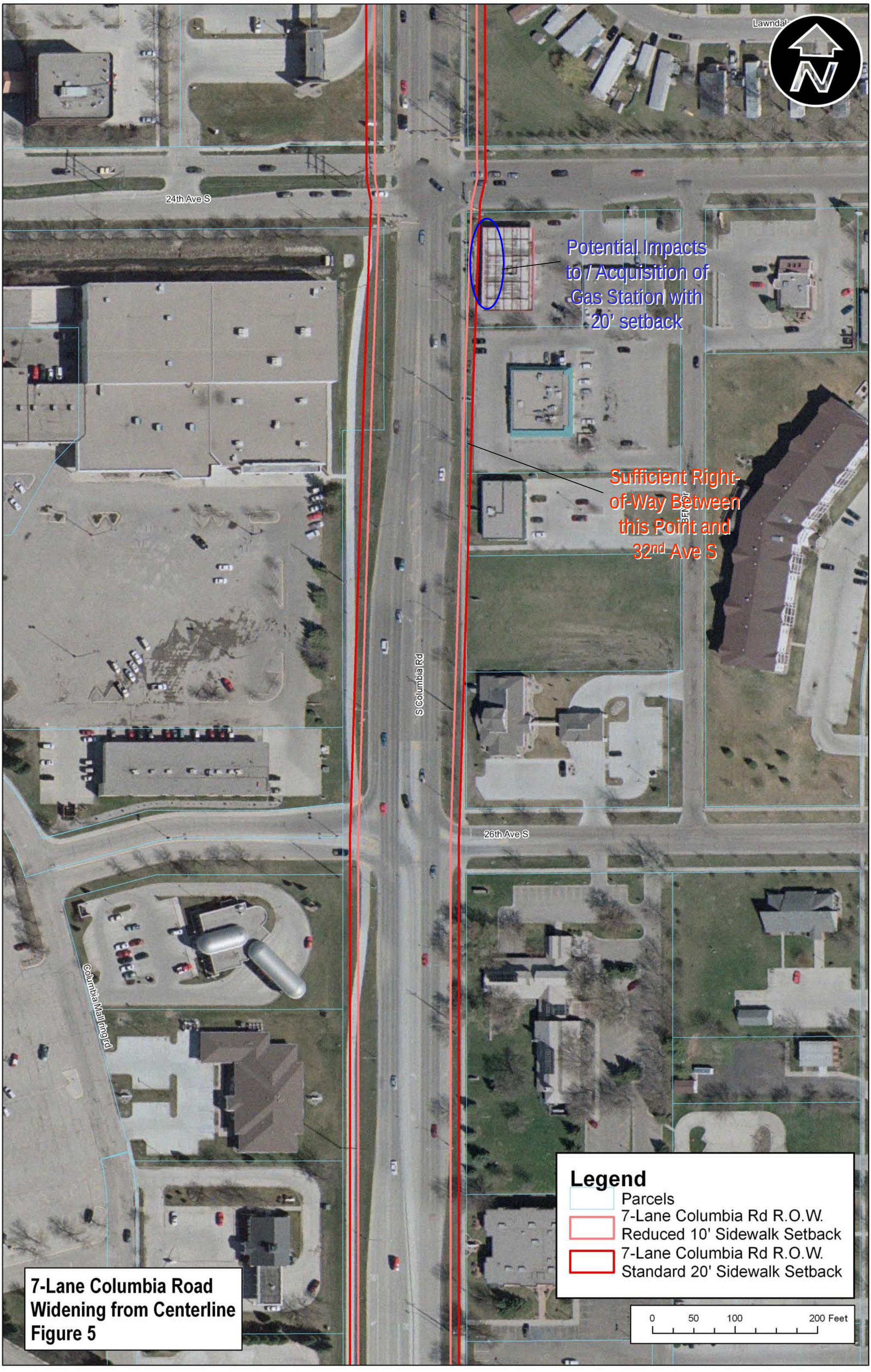
Parcels

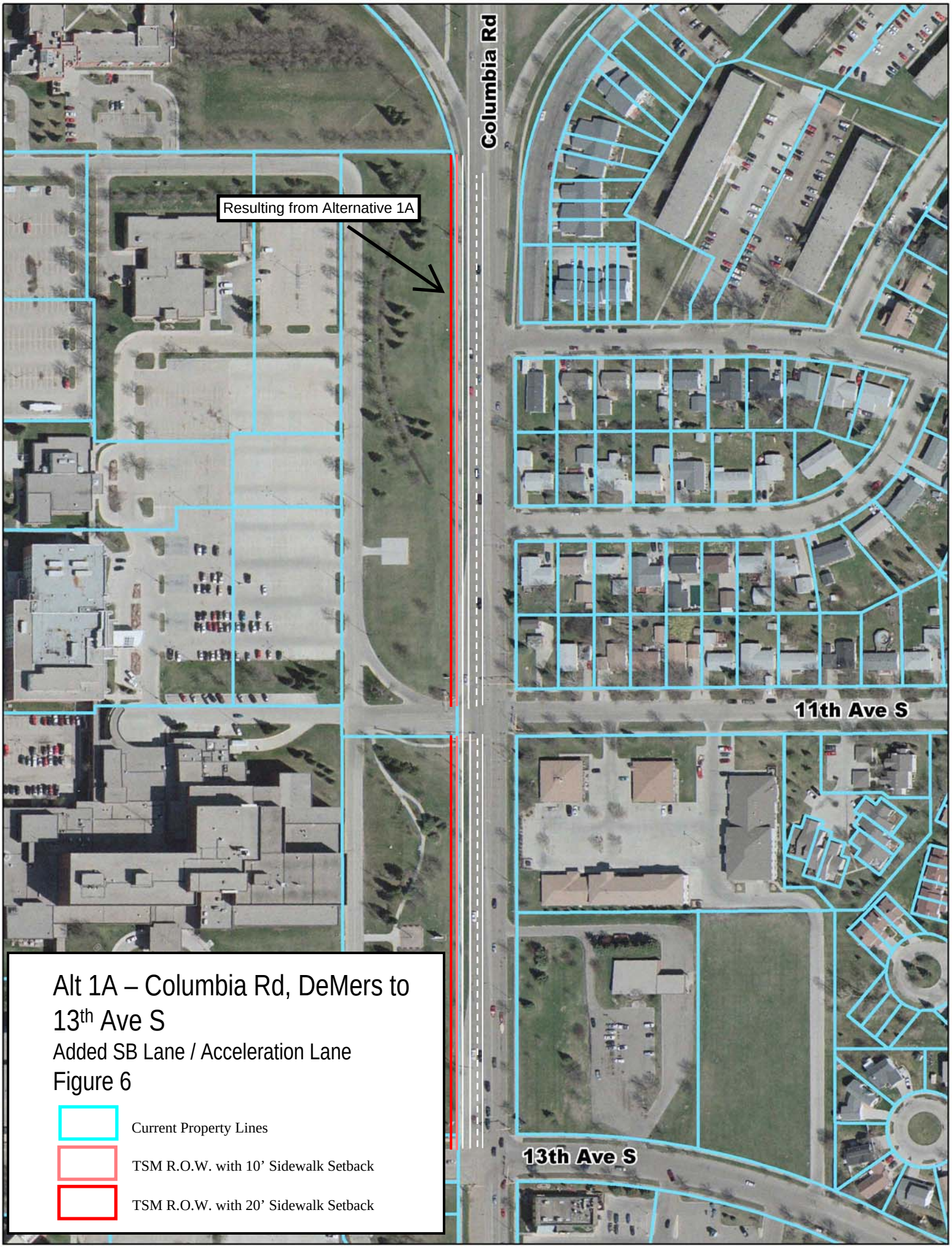
7-Lane Columbia Rd R.O.W. Reduced 10' Sidewalk Setback

7-Lane Columbia Rd R.O.W. Standard 20' Sidewalk Setback

0 50 100 200 Feet

7-Lane Columbia Road Widening from Centerline
Figure 4


Potential Impacts to / Acquisition of Gas Station with 20’ setback
Sufficient Right-of-Way Between this Point and 32nd Ave S
24th Ave S
26th Ave S
S Columbia Rd
Columbia Mall ring rd
7-Lane Columbia Road Widening from Centerline
Figure 5
Legend
Parcels
7-Lane Columbia Rd R.O.W. Reduced 10' Sidewalk Setback
7-Lane Columbia Rd R.O.W. Standard 20' Sidewalk Setback
0 50 100 200 Feet



Alt 1A – Columbia Rd, DeMers to 13th Ave S

Added SB Lane / Acceleration Lane

Figure 6

- Current Property Lines
- TSM R.O.W. with 10’ Sidewalk Setback
- TSM R.O.W. with 20’ Sidewalk Setback

Resulting from Alternative 1B
13th Ave S
Vail
Glen Cir
Glen Cir
14th Ave S
14th Ave S
S Columbia Rd
Knight Dr
Knight Dr
W Fallcreek Ct
Resulting from Alternative 1C
17th Ave S
S 29th St
Columbine Ct
19th Ave S
Legend
Parcels
Columbia Rd TSM R.O.W.
Standard 20' Sidewalk Setback
0 50 100 200 Feet
Columbia Road TSM Widening
13th Avenue to 17th Avenue
Figure 7

17th Ave S
Resulting from Alternative 1C
S 29th St
Columbine Ct
19th Ave S
S 25th St
Prairie Rose Ct
20th Ave S
North entrance
S 29th St
Cumberland Rd
S Columbia Rd
West entrance
Eastbrook Dr
Glenwood Dr
22nd Ave S
Huntington Park Dr
Lawndale Rd
Resulting from Alternative 1D
South entrance
24th Ave S
S 26th St

Legend

Parcels

Columbia Rd TSM R.O.W.
Standard 20' Sidewalk Setback

0 50 100 200 Feet

Columbia Road TSM Widening
17th Avenue to 24th Avenue
Figure 8

MEMORANDUM

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To: **Earl Haugen**
Grand Forks – East Grand Forks MPO TAC

Date: August 3, 2007

Subject: **Updated Comparison of Columbia Rd 7-Lane Expansion Scenario Impacts**

BACKGROUND

This memorandum is a brief update to the July 9, 2007 memorandum, documenting the potential right-of-way impacts associated with a widening to 7-lanes widening along Columbia Road between DeMers Avenue and 32nd Avenue S. The update is based on comments received from City of Grand Forks Engineering staff.

Based on the comments received, two additional sets of right-of-way width lines were generated as suggested by Engineering staff. The main purpose of this memorandum is to provide an illustration of the potential right-of-way widths associated with two additional scenarios sited by Engineering staff, and include the 20' Boulevard scenario from the July 9 memo for comparison.

As with the previous analysis, this review is based on a planning-level evaluation, intended to provide order-of-magnitude estimates of the right-of-way impacts associated with the 7-lane expansion alternatives. At this level of evaluation, precise estimates of right-of-way impacts cannot be presented. Three different right-of-way scenarios are provided for illustration:

- The 20-foot Boulevard scenario, originally presented in the July 9 memo. The 20-foot Boulevard refers to the distance measured between the back of the curb to the property line on each side of the roadway. The boulevard would include the following elements:
  - A 5-foot wide sidewalk on one side, a 10-foot wide trail on the other.
  - A14-foot wide berm (green area for vegetation) adjacent to the sidewalk, and a 9-foot wide berm adjacent to the trail.
  - A 1-foot wide offset distance between the trail / sidewalk and the property line.

  This boulevard width is relatively consistent with what currently exists in the Columbia Road corridor.
- A "Preferred Design", the maximum width scenario suggested by Engineering staff that includes a 20' wide berm on each side. This scenario would have the highest right-of-way width of the scenarios reviewed. The boulevard for this scenario includes the following elements:
  - A 5-foot wide sidewalk on one side, a 10-foot wide trail on the other.

  - A20-foot wide berm adjacent to the sidewalk and the trail.
  - A 1-foot wide offset distance between the trail / sidewalk and the property line.
- A "Minimal Design", as suggested by Engineering staff. This scenario would include a reduced outside lane width (12' wide instead of 14' wide) and no curbed median, only a center turn-lane. The boulevard for this scenario includes the following elements:
  - A 5-foot wide sidewalk on one side, a 10-foot wide trail on the other.
  - An 8-foot wide berm adjacent to the sidewalk and the trail.
  - A 1-foot wide offset distance between the trail / sidewalk and the property line.

For each scenario, Table 1 presents the width of each element.

TABLE 1. 7-Lane Columbia Widening Scenarios, Assumed Widths by Element

7-Lane Widening Scenario	Roadway Elements				Boulevard Elements			Total Cross-Section Width
	Lane Widths, Each Direction			Median Width	Berm Widths (2)	Sidewalk / Trail Widths	Lotline Setback	
	Outside (2)	Middle (2)	Inside (2)					
20' Boulevard	14', 14'	12', 12'	12', 12'	16'	14', 9'	10', 5'	1', 1'	132
Preferred Design	14', 14'	12', 12'	12', 12'	16'	20', 20'	10', 5'	1', 1'	149
Minimal Design	12', 12'	12', 12'	12', 12'	12'	8', 8'	10', 5'	1', 1'	117

The impacts associated with the 7-Lane widening scenario are illustrated in Figures 1 through 5. Table 2 provides a summary of potential impacts by Scenario. As shown in Table 2, at this level of evaluation the potential impacts are not significantly different than those shown previously for the 20' Boulevard scenario.

TABLE 2. Summary of Potential Right-of-Way Impacts by Widening Scenario

Scenario	7-Lane Widening Scenario		
	20' Boulevard	Preferred Design	Minimal Design
Businesses with Parking or Drive Through Impacts	6	8	3
Potential Acquisitions	2 Businesses, 13 Residences	2 Businesses, 13 Residences	1 Business, 3 Residences
Approximate Park Impacts	0.65 Acres	0.8 Acres	0.3 Acres

SUMMARY

The updated right-of-way impacts documented in this memorandum are based on a planning-level evaluation, intended to provide order-of-magnitude estimates of the right-of-way impacts associated with potential 7-lane expansion alternatives along Columbia Road. A more precise accounting of impacts will be possible later in the project development process outside of the long-range planning process.

If there are any questions or comments, please contact Jason at (402) 965-3499.

Kirkwood Dr

9th Ave S

Crescent Dr

3 Potential Residential Acquisitions

Lift Station – Potential Acquisition

11th Ave S

S Columbia Rd

Parking Impacts

13th Ave S

0 50 100 200 Feet

Legend[1]

- Parcels
- 7-Lane Columbia Rd R.O.W. 20' Boulevard Scenario
- 7-Lane Columbia Rd R.O.W. Minimum G.F. Engineering Design
- 7-Lane Columbia Rd R.O.W. Preferred G.F. Engineering Design

7-Lane Columbia Road Widening from Centerline Figure 1

[1] Table 1 provides a complete definition of each widening scenario.

13th Ave S

Significant widening into Commercial Property

Parking Impacts

Commercial Drive Impact

S Columbia Rd

14th Ave S

14th Ave S

Parking Impacts

Significant widening into Commercial Property with Preferred

Knight Dr

Knight Dr

Potential Residential Acquisition with 20' Setback

0 50 100 200 Feet

Legend[1]

- Parcels
- 7-Lane Columbia Rd R.O.W. 20' Boulevard Scenario
- 7-Lane Columbia Rd R.O.W. Minimum G.F. Engineering Design
- 7-Lane Columbia Rd R.O.W. Preferred G.F. Engineering Design

[1] Table 1 provides a complete definition of each widening scenario.

7-Lane Columbia Road Widening from Centerline
Figure 2

Potential Commercial Building Acquisition

Parking Impacts

17th Ave S

In all Three Scenarios, Dual Northbound and Southbound Left-Turn Lanes Still Required for LOS "C" – Adds to Right-of-Way Width at 17th Ave

Widening into Park

S Columbia Rd

Significant widening into Commercial Property with Preferred

19th Ave S

0 50 100 200 Feet

Legend[1]

- Parcels
- 7-Lane Columbia Rd R.O.W. 20' Boulevard Scenario
- 7-Lane Columbia Rd R.O.W. Minimum G.F. Engineering Design
- 7-Lane Columbia Rd R.O.W. Preferred G.F. Engineering Design

[1] Table 1 provides a complete definition of each widening scenario.

7-Lane Columbia Road Widening from Centerline Figure 3

20th Ave S

Cumberland Rd

Glenwood Dr

West entrance

Huntington Park Dr

S Columbia Rd

22nd Ave S

Potential Residential Acquisitions with 20' Boulevard and Preferred Design

Impacts to Bank Drive Thru with 20' Boulevard and Preferred Design

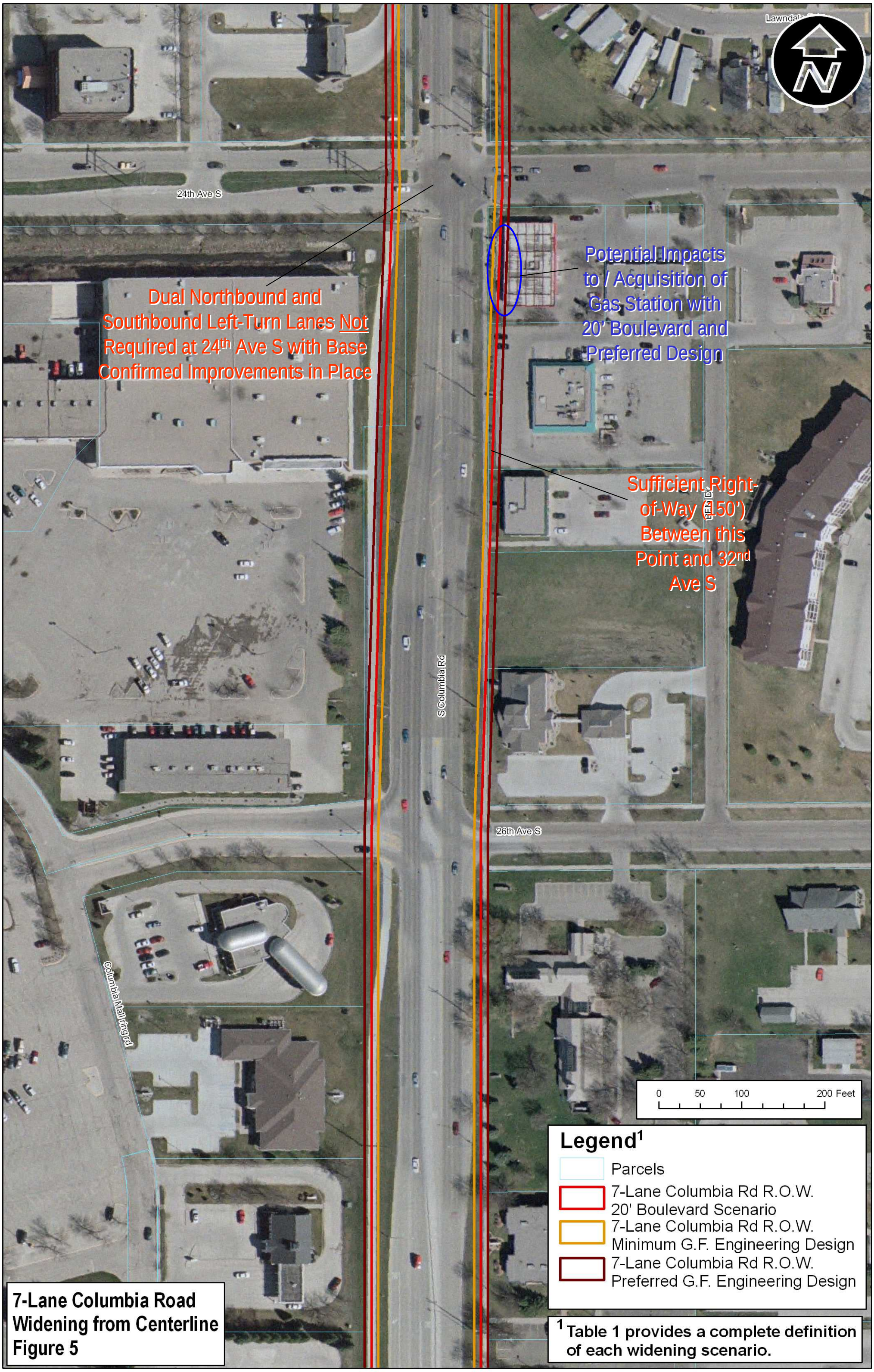
0 50 100 200 Feet

Legend[1]

- Parcels
- 7-Lane Columbia Rd R.O.W. 20' Boulevard Scenario
- 7-Lane Columbia Rd R.O.W. Minimum G.F. Engineering Design
- 7-Lane Columbia Rd R.O.W. Preferred G.F. Engineering Design

[1] Table 1 provides a complete definition of each widening scenario.

7-Lane Columbia Road Widening from Centerline
Figure 4


Lawndale
24th Ave S
Dual Northbound and Southbound Left-Turn Lanes Not Required at 24th Ave S with Base Confirmed Improvements in Place
Potential Impacts to / Acquisition of Gas Station with 20' Boulevard and Preferred Design
Sufficient Right-of-Way (150') Between this Point and 32nd Ave S
S Columbia Rd
26th Ave S
Columbia Mall ring rd
0 50 100 200 Feet
Legend[1]
Parcels
7-Lane Columbia Rd R.O.W. 20' Boulevard Scenario
7-Lane Columbia Rd R.O.W. Minimum G.F. Engineering Design
7-Lane Columbia Rd R.O.W. Preferred G.F. Engineering Design
[1] Table 1 provides a complete definition of each widening scenario.
7-Lane Columbia Road Widening from Centerline
Figure 5

MEMORANDUM

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To: **Grand Forks – East Grand Forks MPO TAC**

Date: July 2, 2007

Subject: **Crystal Sugar Truck Traffic Issues / Alternatives**
Meeting with Dan Gowan, Crystal Sugar

BACKGROUND/PURPOSE

This memorandum documents our meeting with Dan Gowan, Harvest Maintenance Supervisor with Crystal Sugar in East Grand Forks. Earl Haugen, Bill Troe and Jason Carbee met with Mr. Gowan on the afternoon of June 20, 2007. The meeting was scheduled to get more information from Mr. Gowan in regards to truck traffic generated by the Crystal plant, an issue which was identified earlier in the Plan Update. The purpose of the meeting was to get information from Mr. Gowan on Crystal's truck operations, and to discuss potential improvement alternatives that might reroute trucks currently traveling on residential streets. Many of the issues and alternatives described in this memorandum are illustrated in Figure 1.

CRYSTAL SUGAR-RELATED TRUCK OPERATIONS

There are two main categories of truck trips that are oriented to / from the Crystal Sugar plant in East Grand Forks:

- *Seasonal Harvest Trips*: During the beet harvest, typically the first two to three weeks of October, farmers / co-op members bring harvested beets to the plant. This is a 24 hour a day, seven day a week operation during this period. Mr. Gowan reported that they receive approximately 4,000 trucks a day for beet deliveries during the harvest. During the intense 2-3 week harvest period, a beet truck is unloaded an average of every 23 seconds.

  Prior to the harvest, there is also a limited, "pre-harvest" period where trucks run during the day, three or four days a week. This can start as early as late August or early September.

- *Transystems Trips*: Transystems brings beets to the plant from the outlying beet piles. The Transystems operations typically run from November to April (depending on harvest size), carrying approximately 330 loads per day during that time.

The majority of the sugar produced at the plant leaves via rail. Trains run once or twice a day, with stops at the plant lasting approximately 5 minutes.

SEASONAL HARVEST TRIPS

During the harvest and pre-harvest periods, growers bring their loads to one of two scales at the Crystal site: an east scale and a west scale. Trucks oriented to / from the north and west of East Grand Forks unload at the west scale, trucks oriented to / from the south and east of East Grand Forks unload at the east scale. Thus, only trucks oriented to / from the west scale travel through East Grand Forks; trucks going to the east scale arrive via US Highway 2 and Business 2 from the south. The following bullets document the details of how trucks operate around the Crystal plant site during the seasonal harvest:

- Mr. Gowan estimated that trucks were evenly split between the two scales. Thus, approximately 2,000 trucks per day (vpd) or 4,000 total truck trips arrive / depart the west scale to / from the west and north.
- The *seasonal* neighborhood-truck conflicts identified as an issue for the Plan Update are related to trucks oriented to deliveries at the west scale, since trucks oriented to the east scale do not travel through residential neighborhoods of East Grand Forks.
- As shown in Figure 1, the typical route for the majority of trucks destined for the west scale travel via a route of:
  - Eastbound Gateway Drive
  - Southbound 5th Avenue NE
  - Eastbound Business Highway 2
- The 5th Avenue NE – Business 2 intersection is one-way stop controlled such that southbound traffic must stop, but eastbound and westbound traffic do not. During the heavy, seasonal truck traffic there are some delays for trucks traveling southbound along 5th Avenue NE, due to the conflicts with Business 2 traffic (which does not stop at the intersection). Mr. Gowan believed that these southbound delays encourage some trucks to avoid 5th Avenue NE, and instead travel to the west scale by diverting to routes such as DeMers Ave, Central Avenue and / or 4th Street NE through the middle of East Grand Forks.
- Mr. Gowan reported that since 5th Avenue NE was improved a few years ago, he had received significantly fewer complaints related to noise / vibration from passing trucks.
- Mr. Gowan noted that Crystal has little control over the route growers use to drive their trucks to the plant during harvest season.

TRANSYSTEMS TRIPS

Following the harvest, Transystems trucks bring beets to the plant from outside piles. Depending on the size of the harvest, the Transystems trips typically occur between November and April. During this time, there are approximately 330 Transystems truck loads per day arriving at the plant from the surrounding area. The majority of these 330 Transystems trucks (approximately 270 trucks per day or 540 total truck trips) travel from the north / west via 5th Avenue NE, such that for eight to nine months of the year significant truck traffic is adjacent to the residences along the west side of 5th Avenue NE. It is estimated that another 20 of the 330

Transystems trucks travel via Business 2 from the southeast. Thus, it is believed that outside of the peak harvest season, there are few Crystal-generated trucks that travel along the residential lined streets of central East Grand Forks such as 4th Street NE and Central Avenue.

In regards to the issue of pedestrians crossing 5th Avenue NE due to the orientation of the Strauss Park parking lot east of 5th Avenue NE, it was noted that the periods of Crystal-generated truck activity (late August / September through April) do not overlap with the peak times for park utilization, which is heavily used in the summer for the baseball fields. This is particularly true during the harvest, which occurs after baseball / softball season but before skating.

ADDITIONAL ALTERNATIVES

Several opportunities and constraints related to potential improvement alternatives were discussed with Mr. Gowan. Some of the constraints included:

- Topography issues on site limit the range of alternatives which can be considered.
  - As marked on Figure 1, there is a hill created on the site that limits access to the north / northwest of the plant.
  - The soils adjacent to the treatment ponds are soft and marshy, making creation of improved access roads to / from the plant relatively expensive.
- Any alternatives which would lengthen Transystems' trips will add to Crystal's operating costs.

To this point in the alternatives evaluation process, three different alternatives have been considered at this location:

- Improve access to plants from Highway 2, east of plant. This alternative is illustrated in Figure 1 (Alt 17A).
- Alter 5th Avenue NE to avoid crossing Strauss Park ball fields / parking lots. This alternative would reroute the recently reconstructed 5th Avenue E to eliminate the need for pedestrians crossing 5th Avenue NE to get between the parking lot and Strauss Park (Alt 17B).
- Redevelop Strauss Park to place parking lots west of 5th Avenue NE. This alternative would place the parking lot currently on Crystal's parcel within Strauss park west of 5th Avenue NE (Alt 17C).

In addition to those alternatives already considered at this location, two additional alternatives were developed at this location based on our discussion with Mr. Gowan. These alternatives were:

- *Signalization at 5th Avenue NE – Business 2 intersection (Alt 17D).* Adding a temporary traffic signal at the intersection during the seasonal harvest would provide reliable opportunities for southbound traffic to turn onto Business 2. During the seasonal harvest, truck traffic increases such that volumes along 5th Avenue NE, typically 2,300 vpd, would increase to approximately 6,300 vpd. Adding a signal at the intersection would reduce peak delay for southbound traffic and remove the uncertainty associated with finding a gap in traffic to turn left onto Business 2. This

improvement would remove some of the incentive for seasonal trucks to avoid the 5th Avenue NE corridor and should reduce the level of trucks traveling along other corridors (such as 4th Street NE and DeMers Avenue) in East Grand Forks. However, Mr. Gowan did not indicate that the level of delay related to the intersection was significant during the harvest.

Business 2 is currently a MnDOT-maintained roadway, and any changes to intersection control would need to be approved by them. To address safety / driver expectation concerns associated with temporary signals, changeable message signs can be placed on the intersection approaches for several days prior to the intersection's conversion to signal operation. The signal could be turned off with the signal heads removed during the remainder of the year.

- *New North-South Access Road Connecting 10th Street NE to Crystal Plant (Alt 17E).* This new access road would be constructed on Crystal's property. The corridor would use a narrow strip of available right-of-way, just east of the rail line and west of the plant's treatment ponds. The marshy ground adjacent to the ponds would make the construction costs of this roadway relatively expensive.

  From Gateway Avenue trucks could get access to 10th Street NE and the new Crystal access road by using either 5th Avenue NE or 11th Avenue NE (there is a long-term plan for a traffic signal at 11th Ave NE / Gateway Drive). This alternative would provide an access to the plant from the north and west, which would avoid the residences along 5th Avenue NE and south of 10th Street NE and would likely reduce the number of seasonal trucks using residential lined streets through East Grand Forks. Based on our discussions with Mr. Gowan, it is anticipated that the construction cost of this access road would be $3,300,000, based on site-specific cost estimate information provided by Floan-Sanders.

ACTION REQUESTED

Please review the information provided from our meeting with Dan Gowan, including issues and potential improvement alternatives. If there are any questions or comments based on this material, please let us know. At the next Plan Update meeting, a separate discussion will be held to address which of the potential improvements related to Crystal-generated trucks, if any, will be a part of the recommended plan.

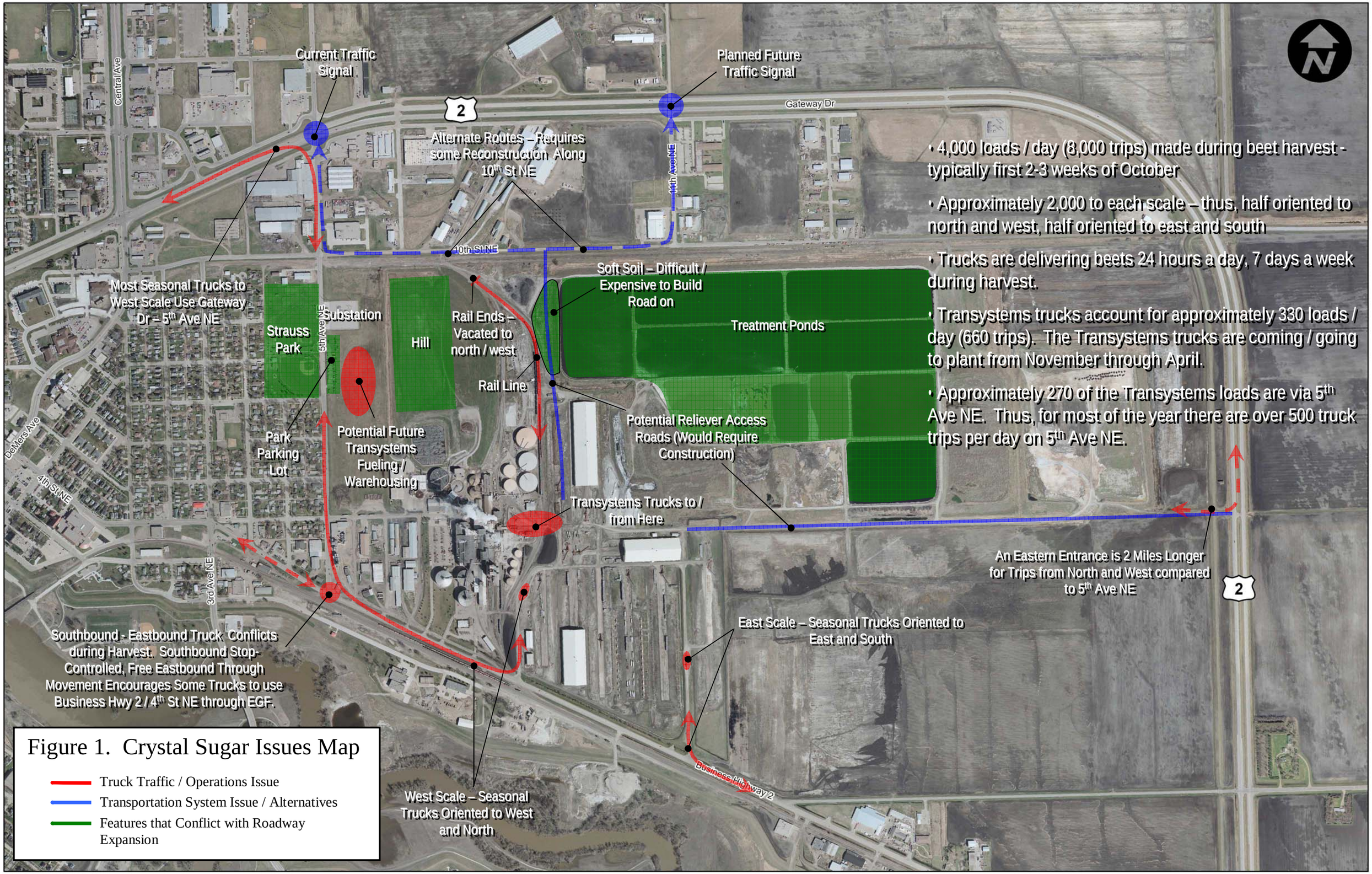

Figure 1. Crystal Sugar Issues Map

- Truck Traffic / Operations Issue
- Transportation System Issue / Alternatives
- Features that Conflict with Roadway Expansion

MEMORANDUM

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To: **Grand Forks – East Grand Forks MPO TAC**

Date: July 3, 2007

Subject: **Updated / Revised Alternatives Following June 20 workshop**

BACKGROUND/PURPOSE

The purpose of this meeting is to document adjustments to the concepts, as they were presented in the June 20 workshop with the TAC. Alternatives were adjusted based on comments received at the meeting. Conceptual illustrations of the updated / revised alternatives are provided at the end of the memorandum.

REVISED ALTERNATIVES

The following alternatives were adjusted following the June 20 workshop:

- *Alternative 1B: Add southbound (SB) dual left-turn lanes at the 13th Avenue S / Columbia Road intersection*. It was noted at the workshop that the current westbound right-turn lane was not reflected in the concept drawing. The attached concept includes the westbound right-turn lane. Based on additional comments received at the meeting, it is assumed that the traffic signal would need to be replaced. As a result, the revised draft estimated project costs would increase to $500,000.
- *Alternative 1C: Add dual left-turn lanes to all approaches and a SB right-turn lane at the 17th Avenue S / Columbia Road intersection.* Similar to Alternative 1B, the current westbound right-turn lane was added back to the concept drawing for Alternative 1C. Based on comments received at the meeting, it is assumed that project costs would increase to $1,000,000. This revised draft cost estimate includes assumed right-of-way costs of $100,000 for the parcels on the northwest and northeast corners, but does not assume that the businesses are acquired. There would likely be parking impacts to the business on the northeast corner with this alternative.
- *Alternative 2 G: Add a third through-lane to all approaches and SB and northbound (NB) dual left-turn lanes at the DeMers Avenue / Washington Street intersection*. This concept was suggested after the June 20 workshop, representing a likely "full build-out, at-grade" scenario. This scenario does not provide a significantly improved level of delay compared to the combined Alt 2A, 2B, 2C and 2D scenario.
- *Alternative 3A*: *Add dual westbound (WB) left-turn lanes and SB right turn lane at the 32nd Avenue S / 34th Street intersection*. It was suggested that a SB right-turn lane be added to the improvement alternative. As a result, the revised draft estimated

project costs would increase to $360,000.

- *Alternative 3C: Add dual NB and SB left-turn lanes and a SB right-turn lane at the 32nd Avenue S / 38th Street intersection*. It was suggested that a SB right-turn lane be added to the improvement alternative, consistent with the Alerus Center Study. As a result, the revised draft estimated project costs would increase to $150,000.

From the perspective of evaluating these alternatives in a regional sense, these changes are relatively minor. As a result, we have not assumed any changes to the prioritization scoring beyond those discussed at the June 20 workshop.

NEW ALTERNATIVE

In addition to the revised alternatives, a new alternative was suggested at the June 20 workshop: *Alternative 3L: Extend 42nd Street to 32nd Avenue S and Reconfigure the NB I-29 On-Ramp*. The purpose of this concept was to provide a continuous 42nd Street corridor with a direct connection to 32nd Avenue S. Currently 42nd Street, a north-south street just east of I-29, curves and runs east-west approximately 600 feet north of 32nd Avenue. The east-west segment of 42nd Street then connects / transitions to 38th Street, where it again runs north-south. Thus, traffic that is routed via both 42nd Street and 32nd Avenue currently needs to travel through the 32nd Avenue – 38th Street intersection.

This alternative would eliminate the current 42nd Street curve and transition into 38th Street by realigning 42nd Street so that it intersects with 32nd Avenue at the current northbound I-29 ramp terminal intersection. The 42nd Avenue extension would make it necessary to remove the current northbound I-29 on-ramp from 32nd Avenue. The NB on-ramp ramp would be moved approximately 500 feet north 32nd Avenue with access off of 42nd Street. A conceptual drawing of this alternative is included at the end of this memo.

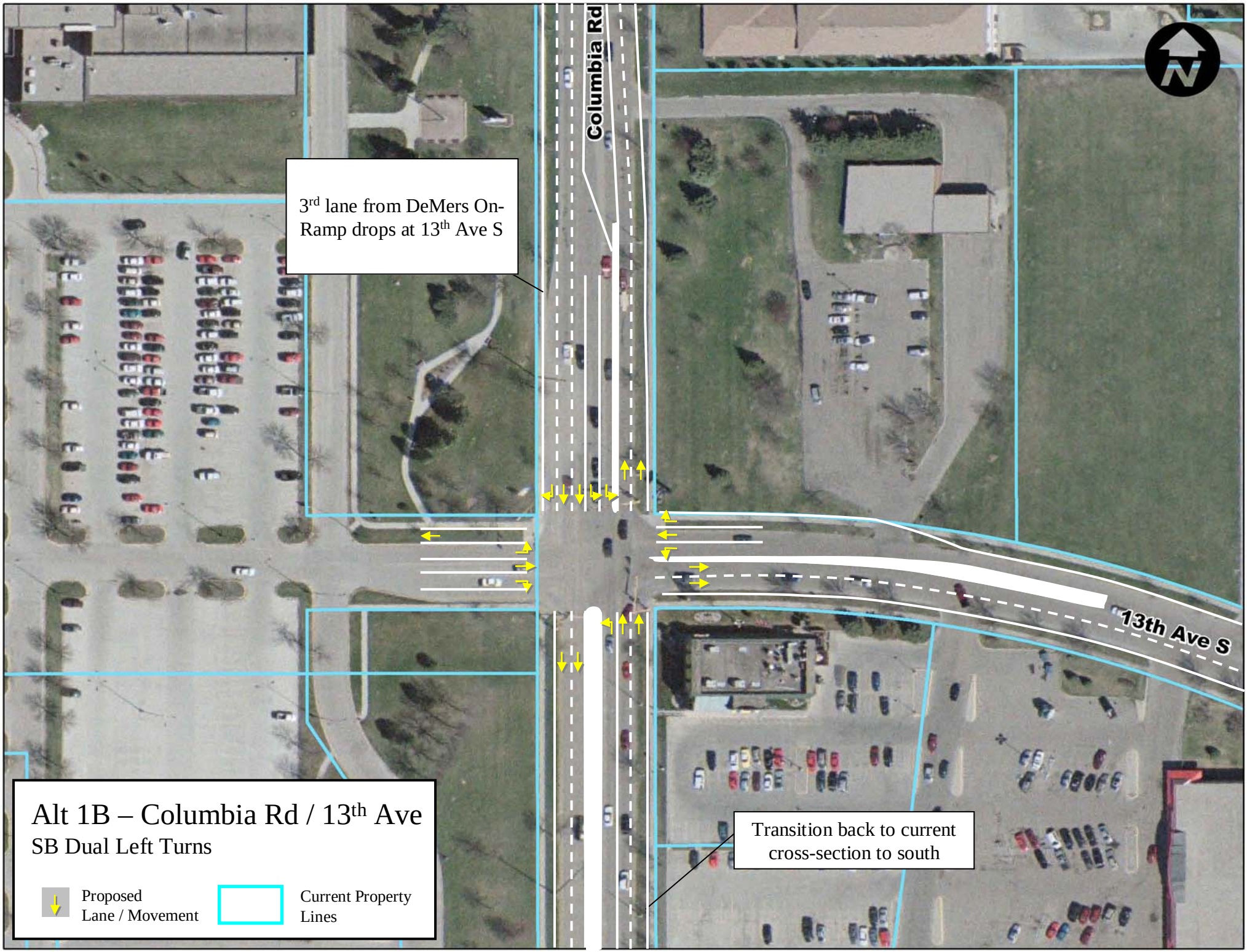
Acceptable traffic operations would be provided by this concept through 2035. The new 42nd Street / NB I-29 on-ramp intersection would operate at LOS "A". The preliminary cost estimate for this alternative is $2,300,000. The preliminary prioritization scoring for this alternative is shown in Table 1 in relation to the other adjacent corridor improvements for the 32nd Avenue congestion issue. Note that this is the unweighted scoring approach.

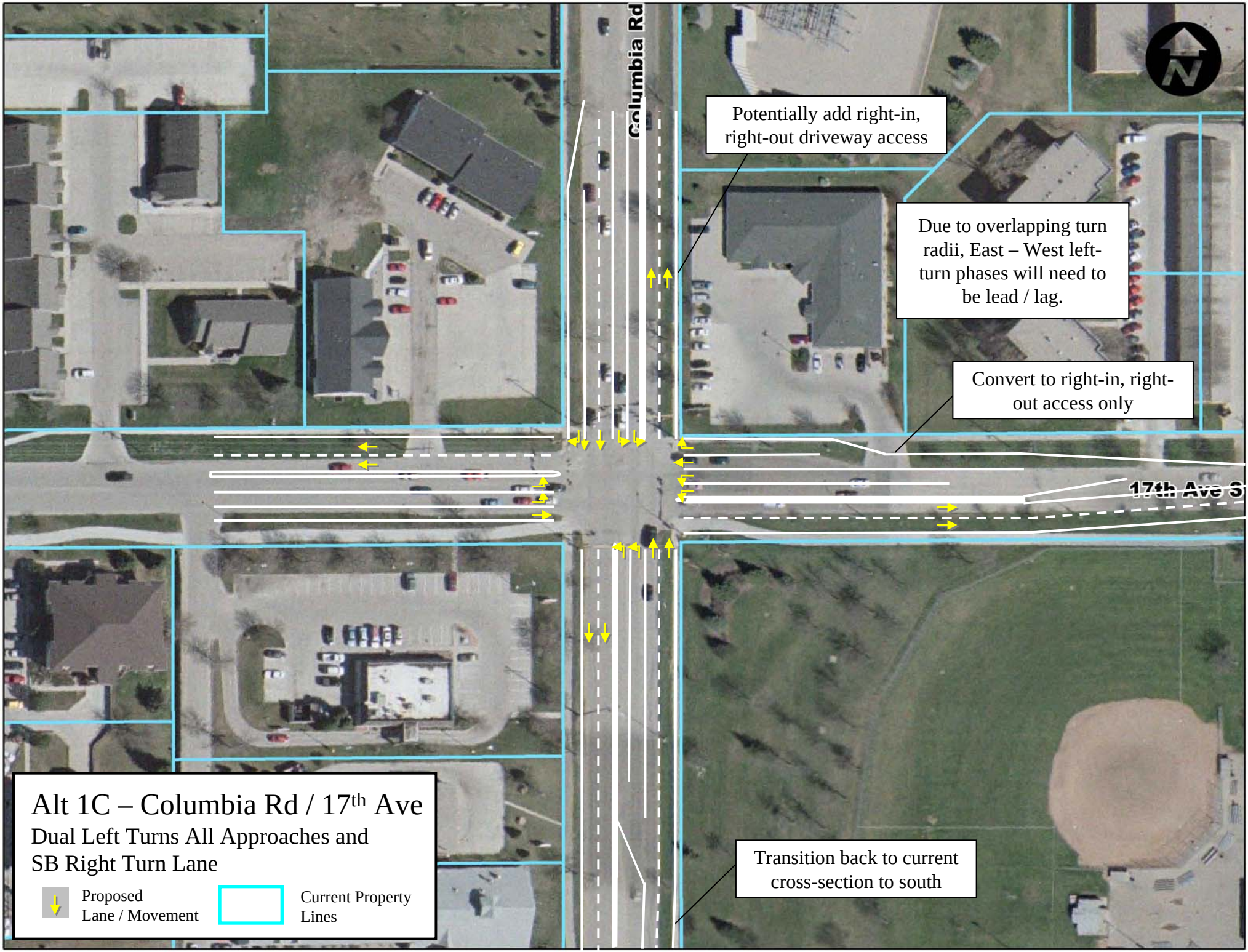
REQUESTED ACTION

Please review the updated alternatives presented in this memorandum and provide any comments or questions you might have. An overview of these alternatives will be provided at the July 11 TAC meeting.

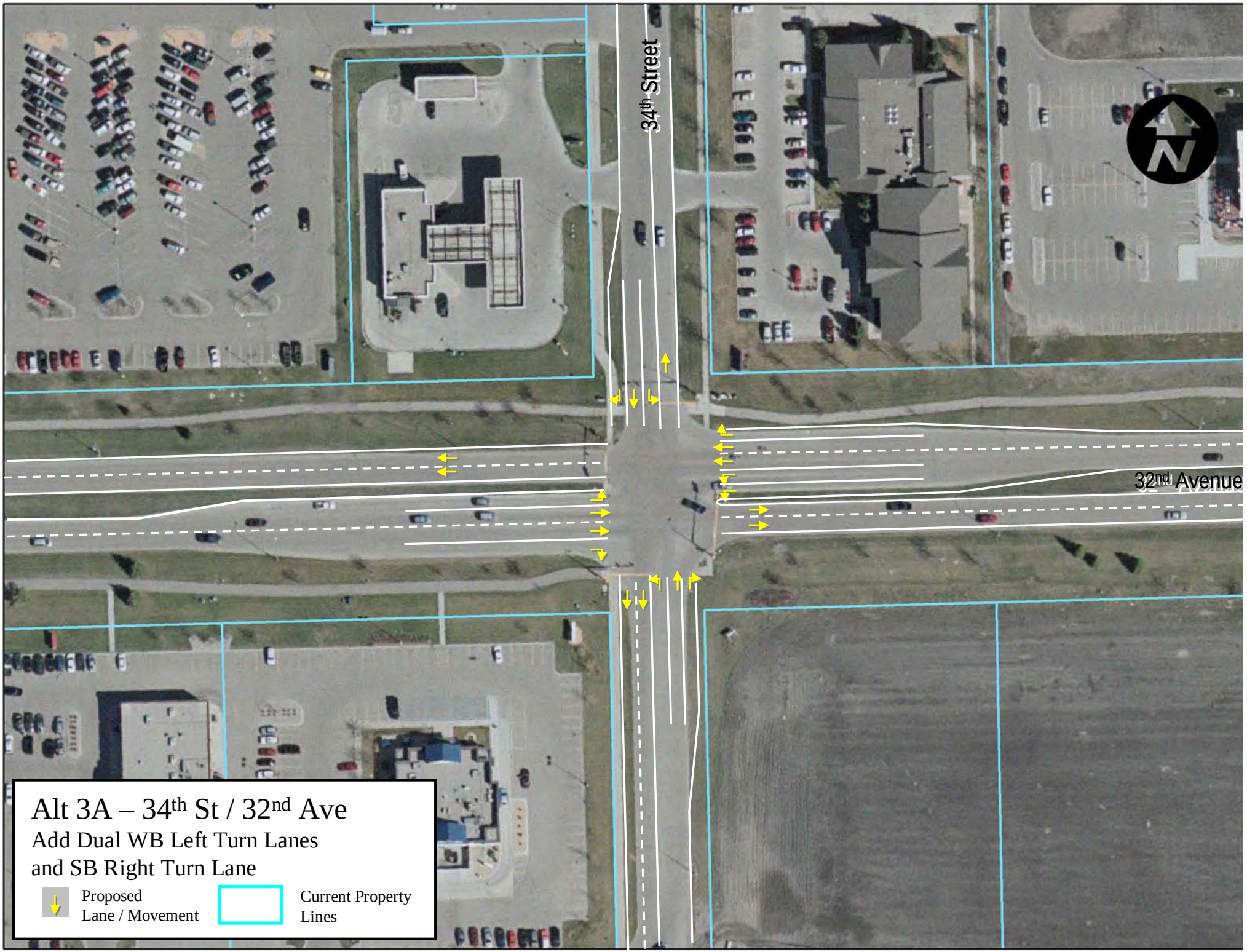
TABLE 1. Preliminary Prioritization Scoring, Alternative 3L

			Social					Engineering					Environmental				
Issue	Alternative ID	Improvement Description	Local Public Support for Project	Multi-Modal Support	Consistency with Local / Regional Plans	Connectivity / Continuity	Consistency with Economic Development Activities	Safety	Congestion Relief	Security	Cost	Operations and Maintenance	VMT / VHT / Trip Generation	Air Quality	Built / Natural Environment Impacts	Economic Impact	Draft Total Score
32nd Avenue Congestion Relief																	
Adjacent Corridors																	
	3 K	17th Ave South overpass of I-29	6	4	4	4	6	2	4	4	2	0	4	4	6	6	56
	3 H	Merrifield Rd / I-29 Interchange	6	0	4	6	6	2	4	4	2	0	2	2	6	4	48
	3 L	Extend 42nd Street to 32nd Avenue S and Reconfigure the NB I 29 On-Ramp	**6**	**0**	**2**	**2**	**2**	**2**	**4**	**2**	**4**	**0**	**0**	**2**	**6**	**2**	**34**
	3 E	I-29 / 32nd Ave Interchange: Add loop ramps, relocate the NB on-ramp	6	0	4	2	2	2	4	2	2	0	0	2	6	2	34
	3 I	Restripe 24th Ave S as 3-Lane Roadway, Columbia to Washington	4	0	2	2	2	2	4	2	6	2	0	2	4	0	32
	3 F	I-29 / 32nd Ave interchange: Add loop ramps, NB on-ramp relocated to 42nd St	4	0	2	2	2	2	2	2	2	0	0	2	6	2	28

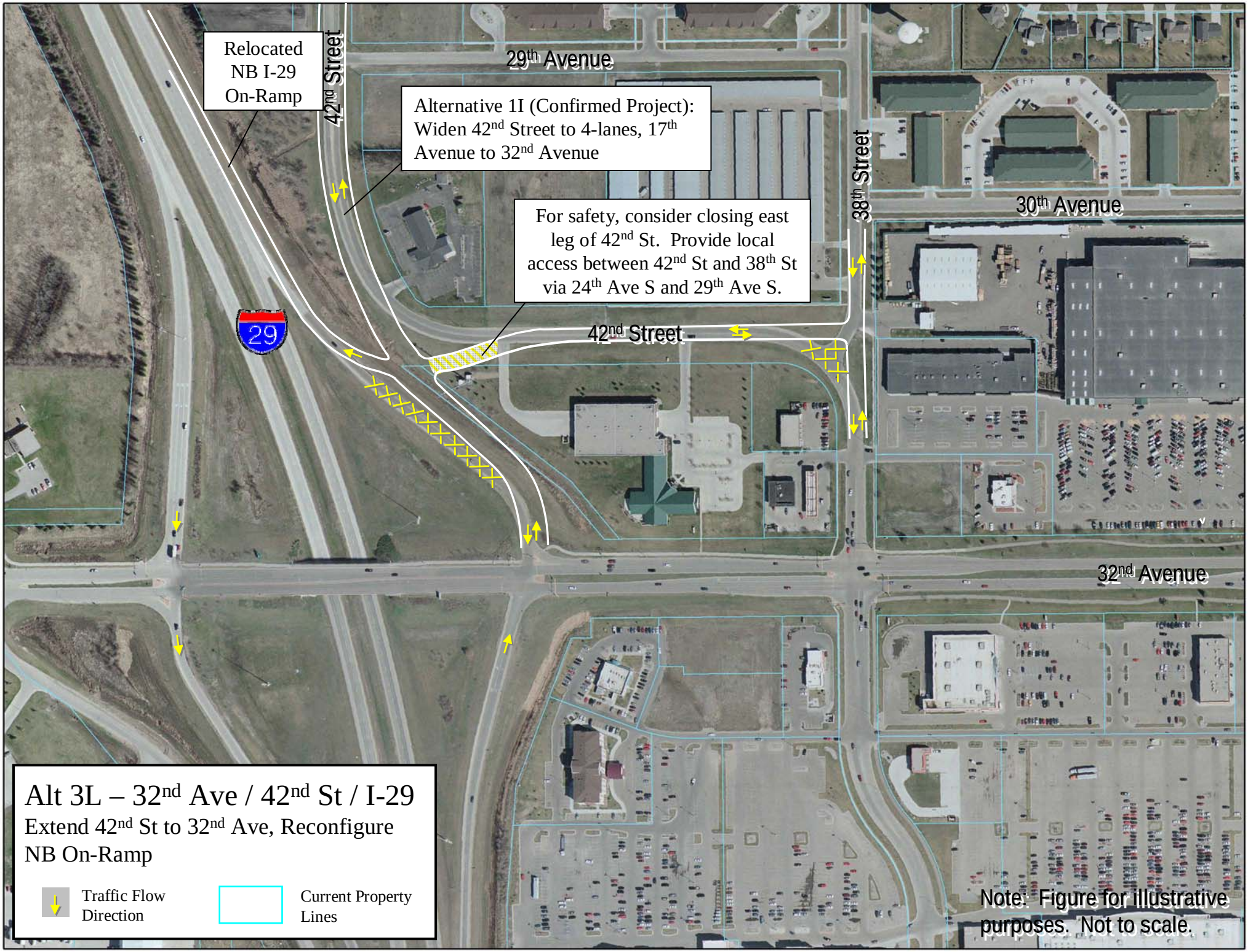

Columbia Rd
3rd lane from DeMers On-Ramp drops at 13th Ave S
13th Ave S
Transition back to current cross-section to south
Alt 1B – Columbia Rd / 13th Ave
SB Dual Left Turns
Proposed Lane / Movement
Current Property Lines


Columbia Rd
Potentially add right-in, right-out driveway access
Due to overlapping turn radii, East – West left-turn phases will need to be lead / lag.
Convert to right-in, right-out access only
17th Ave S
Transition back to current cross-section to south
Alt 1C – Columbia Rd / 17th Ave
Dual Left Turns All Approaches and SB Right Turn Lane
Proposed Lane / Movement
Current Property Lines

Washington St
DeMers Ave
N
Alt 2G – DeMers Ave – Washington St
Add Third through Lane to All Approaches and
Dual Left-turn Lanes on NB and SB Approaches
Proposed
Lane / Movement
Current Property
Lines


34th Street
32nd Avenue
N
Alt 3A – 34th St / 32nd Ave
Add Dual WB Left Turn Lanes
and SB Right Turn Lane
Proposed
Lane / Movement
Current Property
Lines

38th Street
32nd Avenue
Alt 3C – 38th St / 32nd Ave
Add Dual NB and SB Left Turn Lanes and SB Right Turn Lane
Proposed Lane / Movement
Current Property Lines


Relocated NB I-29 On-Ramp
42nd Street
29th Avenue
Alternative 1I (Confirmed Project): Widen 42nd Street to 4-lanes, 17th Avenue to 32nd Avenue
38th Street
30th Avenue
For safety, consider closing east leg of 42nd St. Provide local access between 42nd St and 38th St via 24th Ave S and 29th Ave S.
29
42nd Street
32nd Avenue
Alt 3L – 32nd Ave / 42nd St / I-29
Extend 42nd St to 32nd Ave, Reconfigure NB On-Ramp
Traffic Flow Direction
Current Property Lines
Note: Figure for illustrative purposes. Not to scale.

MEMORANDUM

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To: **Earl Haugen**
Grand Forks – East Grand Forks MPO TAC

Date: August 2, 2007

Subject: **Washington Street – DeMers Avenue Intersection Alternatives Summary**

The purpose of this memorandum is to present the range of alternatives considered at the intersection of Washington Street and DeMers Avenue. The memorandum includes:

- A summary of the alternatives developed to this point at the Washington – DeMers intersection. Much of this information has already been presented to the TAC, but presents a comprehensive review of the process and evaluations followed to this point in the study.
- A presentation of potential combinations of at-grade improvements at the Washington - DeMers intersection with the Base Confirmed Scenario of improvements in place. The Base Confirmed Scenario projects will be part of the recommended 2035 Street and Highway Plan, assuming that the final financial analysis shows that the projects are "fundable". Thus, the remaining alternatives analysis will assume that these improvements are in place. The 32nd Avenue Red River Crossing is part of the Base Confirmed Scenario, and when constructed will divert a significant level of traffic from the Washington – DeMers intersection.

BACKGROUND

Two main factors that have made the development of alternatives at this intersection significantly more complex than at other locations in the metropolitan area:

- Traffic Operations: The intersection currently has both the highest levels of traffic and travel delay in the metropolitan area. There are currently 6,200 vehicles entering the intersection during the PM peak hour, when the intersection operates at level-of-service (LOS) "F" with average vehicle delays over 80 seconds long. Delays are forecasted to increase over the planning horizon as traffic volumes are forecasted to increase at a moderate rate through 2035.
- Limited Available Street Right-of-Way: The footprint and orientation of the current intersection makes it difficult to change the current intersection layout without impacting adjacent development. As shown in Figure 1, several businesses and civic uses, including parks and a fire station, are adjacent to the intersection. The current street right-of-way widths are:
  - *Washington Street south of DeMers Ave*: approximately 85 feet wide

- *Washington Street north of DeMers Ave*: approximately 100 feet wide.
- *DeMers Avenue*: approximately 110 to 120 feet wide.

The back of roadway curb currently ranges between 8 and 12 away from adjacent property lines along Washington Street and 16 to 18 feet away from adjacent property lines along DeMers Avenue. There is little or no sidewalk setback from the roadway along Washington Street. Thus, any roadway widening at the intersection would likely require some right-of-way acquisition from adjacent properties.

Based on research conducted by MPO staff, the Washington – DeMers intersection has been identified for improvements going back to the 1969 Urban Area Transportation Study, when it was recommended to improve the intersection to a grade-separated interchange. Similar interchange recommendations were made in the 1979 Transportation Study Update and the1992 Transportation Plan Update. The current Street and Highway plan update (2003) recommends adding a third, eastbound through lane at the intersection.

ALTERNATIVES CONSIDERED

As with all locations reviewed for potential improvement alternatives in the Street and Highway Plan update, a range of improvement types was considered at the Washington Street – DeMers Avenue intersection. The types of improvements considered were:

- Expansion improvements, which would add through or turn lanes to reduce the identified capacity deficiency, including smaller scale intersection improvements termed transportation system management (TSM) improvements.
- Improvements to existing adjacent or complementary corridors, through adding capacity or increasing the level of connectivity and/or continuity, that would share the traffic load currently carried with the deficient corridor.
- Developing alternate corridor(s) that would share a part of the traffic load that is currently or forecasted to be within the deficient corridor in the base / existing-plus-committed network scenario.
- Upgrading the current at-grade intersection to a grade-separated interchange.

It should be noted that recommending no improvements to the intersection is a possible outcome.

All of improvements evaluated at the intersection are summarized in Table 1 by evaluation perspective: social, engineering, environmental and cost. To supplement the table, the remainder of this memorandum provides a summary of the benefits and impacts by type of improvement alternative. The “Alternative Evaluation Summary” section documents each improvement alternative as a stand-alone option and does not consider complementary improvements in tandem. The “Base Confirmed Scenario Packages” section presents potential at-grade improvements in combination with those alternative improvements included in the Base Confirmed Scenario, which would divert traffic from DeMers Avenue.

ALTERNATIVE EVALUATION SUMMARY

Expansion Alternatives

Description: Several at-grade improvements are being considered at the intersection. These alternatives have been evaluated as both stand-alone improvements and as a combined set of improvements. The various expansion alternatives considered include:

- *Alternative 2A*: Add eastbound through lane. This was the recommended concept in the 2030 Transportation Plan.
- *Alternative 2B*: Add 3rd DeMers Ave lane for both the eastbound and westbound approaches
- *Alternative 2C*: Add 3rd Washington Street through lane for southbound traffic
- *Alternative 2D*: Add 3rd Washington Street through lane for northbound traffic
- *Alternative 2G*: Add a third through-lane to all approaches and SB and northbound (NB) dual left turn lanes at the DeMers Avenue / Washington Street intersection

Alternatives 2A, 2B, 2C and 2D are illustrated in Figure 2. Alternative 2G is illustrated in Figure 3.

Engineering/Traffic Perspective: On their own, each of the lane-addition alternatives provide a reduction in travel delays at the intersection. The results of each individual alternative is summarized in Table 1. On their own:

- Alternatives 2A and 2B provide an improved LOS "F"
- Alternatives 2C and 2D offer LOS "E"
- Alternative 2G offers LOS "D".

However, on their own none of these alternatives meet the MPO and NDDOT goal of achieving LOS "C" or better at the intersection through the planning horizon of 2035.

Social/Land Use Perspective: Each of the at-grade expansion projects will have some property impacts associated with them.

- *Alternative 2A*: In the 2030 LRTP, this concept assumed all widening was to the north. This would impact the operations of the fire station to the north, requiring either a multi-million dollar reconstruction / reconfiguration of the existing building or its acquisition and relocation. This concept would also require some acquisition of BNSF railroad property, with no anticipated impacts to BNSF operations.
- *Alternative 2B*: At a minimum, this concept would require an additional 12 feet of widening compared to Alternative 2A. The additional westbound through lane would likely be carried through for approximately a half-mile west of Washington Street to 20th Street, where the added lane would be dropped as a left-turn lane. If all widening were to the north, this would likely require the acquisition of the fire station. The impacts to any additional properties would be likely minimal, with some added acquisition of BNSF railroad property but no impacts to their operations.

- *Alternative 2C*: This concept would add a 3rd southbound lane, maintaining the third southbound lane for approximately a half-mile south of DeMers Avenue to 13th Avenue S, where the new lane would be dropped as a right-turn lane. Assuming that the Washington Street widening were all to the west, it is assumed that the right-of-way requirements associated with adding the third southbound lane would likely require:
  - acquiring four businesses
  - significantly impact parking and traffic circulation at six other businesses.
- *Alternative 2D*: This concept would add a 3rd northbound lane, maintaining the third northbound lane for at least a quarter-mile north of DeMers Avenue to University Avenue, where the new lane would be dropped as a right-turn lane. Assuming that the Washington Street widening were all to the east, it is assumed that the right-of-way requirements associated with adding the third northbound lane would likely require:
  - acquiring one business
  - significantly impact parking at three other businesses.
- *Alternative 2G*: This concept would have the cumulative impacts of each of the stand alone alternatives.

With these alternatives, the current driveway access to the properties northeast of the intersection can be maintained.

Environmental Perspective: Widening into railroad property may involve evaluation of past soil contamination from fuel.

Cost: Costs range from $2,600,000 to $14,000,000 for these alternatives. The costs vary between alternatives due to the varying degrees of potential right-of-way costs associated with business acquisitions and the fire station purchase / relocation.

Screening Status: **Still being evaluated in Second Level**.

Improve Adjacent / Complementary Corridors

Description: Adjacent corridors were reviewed for their ability to be improved to a level that would divert traffic from the deficient Washington – DeMers intersection. Alternatives were considered in two corridors, where capacity improvements were evaluated for their potential / effectiveness in sharing the traffic load currently traveling through the Washington – DeMers intersection. These two alternatives were:

- Convert University Ave / 2nd Ave N to a one-way pair between Washington Street and downtown.
- Improve S 20th St between DeMers Ave and 32nd Ave

Engineering/Traffic Perspective: A summary of the engineering / traffic perspective includes:

- Both alternatives would divert traffic from certain traffic movements at the Washington-DeMers intersection, particularly the westbound left-turns that are high during the PM peak hour. While both alternatives reduce delays at the intersection, the intersection would remain at LOS "F" with each alternative.
- Both alternatives would require the addition of second left-turn lanes at either Washington Street – University Avenue (University / 2nd Avenue One-Way Pair) or at 20th Street – DeMers Avenue (20th Street Improvement).

Social/Land Use Perspective: Both alternatives would increase traffic volumes, and potentially travel speeds through the improved corridors in the residential neighborhoods. The 20th St improvement would remove on-street parking at intersections where turn-lanes are added. The University – 2nd Avenue one-way pair would reduce direct access to residences, such that traffic from the opposite direction would need to go drive slightly out-of-direction and do a one-block u-turn to get home. Furthermore, 20th Street is a designated safe route to school, and increasing adjacent traffic volumes in such a corridor would go against a Plan objective.

Environmental Perspective: Increase in traffic volumes and noise to adjacent residences.

Cost: No estimates completed, but both are relatively low to moderate cost.

Screening Status: **Discarded following First Level Screening**.

Development of Alternate Corridors

Description: A Red River crossing at 32nd Avenue would offer a more direct connection between the south sides of Grand Forks and East Grand Forks. A significant portion of the traffic that would use a 32nd Avenue Bridge currently uses the DeMers Avenue corridor to access the Point and Sorlie Bridges. Thus, a 32nd Avenue river crossing would divert traffic from the intersection, reducing traffic volumes and delays in the corridor.

Engineering/Traffic Perspective: This concept would divert 2,500 to 3,000 vehicles per day from DeMers Avenue at its Washington Street intersection. On its own, a 32nd Avenue Bridge would reduce travel delays at the intersection, but would not meet the MPO and NDDOT goal of achieving LOS "C" or better at the intersection through the planning horizon of 2035.

Social/Land Use Perspective: This concept would significantly reduce traffic volumes adjacent to residences along the 4th Avenue South corridor and the Belmont Road corridor. However, the concept would significantly increase traffic volumes adjacent to residences along the 32nd Avenue corridor east of Washington Street.

Environmental Perspective: Requires environmental documentation and agency review for approval. Increased traffic volumes and noise adjacent to 32nd Avenue residences.

Cost: $20,000,000

Screening Status: **Recommended in 2030 LRTP, reconfirmed in 2035 Plan and will be recommended contingent on funding analysis (included in "Base Confirmed Scenario").**

Interchange Alternatives

Description: Two different main options for a grade-separated interchange have been considered at this location: a single-point urban interchange (SPUI) and split-diamond interchange with connections to the current 4th Avenue South interchange. The interchange alternatives are shown in Figures 4 and 5.

Engineering/Traffic Perspective: Both interchange alternatives would improve the traffic operations to an acceptable level through 2035. Today the intersection operates at LOS "F" during the peak, with the interchange in place all movements would operate at LOS "C" or better. With an interchange in place, through traffic on DeMers Avenue would be grade-separated from Washington Street and would have no delays.

Social/Land Use Perspective: There are significant impacts to access and property acquisition associated with both interchange alternatives.

- Both interchange alternatives would have a larger footprint than the current intersection, with direct impacts to the gas station on the southwest corner, the vacant Hardees on the southeast corner, the fire station on the northeast corner and the BNSF property on the northwest corner.
- The SPUI would require the closure of the existing shared driveway for the businesses and fire station on the northeast corner of the intersection (5th Ave South). This loss of access would essentially land-lock the businesses, making the parcels (approximately 5 acres) inaccessible.
- The split-diamond interchange would allow the driveway to stay open, but direct access would only be available via the westbound collector/distributor road between the 4th Avenue South and Washington Street interchanges.
- Both interchange concepts would impact portions of the DeMers south frontage road west of Washington Street.

Environmental Perspective: In both alternatives, there are potential Section 4(f) impacts due to widening into park / city recreation land. Widening into railroad property may involve evaluation of past soil contamination from fuel.

Cost: $18,700,000 to $23,500,000

Screening Status: **Still being evaluated in Second Level.**

BASE CONFIRMED SCENARIO PACKAGES

A set of recommended projects from the 2030 Street and Highway Plan have been reconfirmed by the evaluations done in the current 2035 Street and Highway Plan update, and are referred to as the "Base Confirmed Scenario" improvements. As such, the remainder of the alternatives analysis will assume that the projects are in plane, including the 32nd Avenue South river crossing.

The primary projects included in the Base Confirmed Scenario are:

- 17th Avenue Overpass of I-29
- Merrifield Road Interchange with I-29
- Merrifield Road Red River Crossing
- 32nd Avenue South Red River Crossing
- 42nd Street Widening, 17th Avenue South to 32nd Avenue South
- Central Spine / 2nd Ave NE – BNSF Rail Grade Separation

Many of the Base Confirmed projects represent significant improvements to the Grand Forks / East Grand Forks transportation system. Thus, they will affect the level of traffic across the region's roadway system. The 32nd Avenue Red River Crossing, included in the list of confirmed alternatives, will have the most effect on reducing traffic volumes at the Washington Street – DeMers Avenue intersection. With the 32nd Avenue Red River Crossing in place, traffic volumes along DeMers Avenue will be reduced by approximately 3,000 vehicles per day. Complete information on the traffic forecasts associated with the Base Confirmed scenario was recently provided to the TAC.

Several at-grade expansion alternatives were evaluated at the Washington Street – DeMers Avenue intersection assuming that the Base Confirmed Network was in place, including the 32nd Avenue River Crossing. Three different combinations of at-grade alternatives are presented below, each assuming that the Base Confirmed Scenario improvements are in place:

- *Alternative 2H*: Add a 3rd DeMers Avenue lane for both the eastbound and westbound approaches and add northbound and southbound dual left-turn lanes. This concept is essentially the same as Alternative 2B, but includes an additional left-turn lane for both northbound and southbound movements. This alternative is illustrated in Figure 6.
- *Alternative 2I*: Add a 3rd Washington Street lane for both the northbound and southbound approaches and add northbound and southbound dual left-turn lanes. This concept combines Alternatives 2C and 2D, and includes an additional left-turn lane for both northbound and southbound movements. This alternative is illustrated in Figure 7.
- *Alternative 2J*: Add a 3rd through lane for both eastbound DeMers and southbound Washington Street. This concept combines Alternatives 2A and 2C, and includes an additional left-turn lane for both northbound and southbound movements. This alternative is illustrated in Figure 8.

The Base Confirmed evaluation results of the 2030 Plan recommended alternative, Alternative 2A, is also included in the engineering / traffic and cost categories for comparison.

Engineering/Traffic Perspective: With the Base Confirmed package of improvements in place, Alternatives 2H, 2I and 2J provide similar levels of delay reduction for the Washington St –

DeMers Avenue intersection, each forecasted to provide LOS "D" through 2035.

With the Base Confirmed projects in place, Alternative 2A, the addition of an eastbound through lane on DeMers, is forecasted to provide LOS "E" in 2035.

Social/Land Use Perspective: Each of the at-grade expansion projects will have some property impacts associated with them.

- *Alternative 2H*: This concept would require approximately an additional 24 feet of right-of-way, likely all widening to the north. This alternative would likely require the acquisition of the fire station on the northeast corner. The impacts to any additional properties would be likely minimal, with some acquisition of BNSF railroad property but no anticipated impacts to their operations.
- *Alternative 2I*: This concept would have the cumulative impacts of alternative 2C and 2D, requiring at least an additional 12 feet of right-of-way for approximately a half-mile south of DeMers Avenue to 13th Avenue S and an additional 12 feet of right-of-way for approximately a quarter-mile north of DeMers Avenue to University Avenue. Due to the limited right-of-way widths in the corridor and the close proximity of much of the development to the street, it is assumed that this widening would likely require:
  - acquiring five businesses
  - significantly impacting parking and/or traffic circulation at nine other businesses.
- *Alternative 2J*: This concept would have the cumulative impacts of Alternatives 2A and 2C, requiring at least an additional 12 feet of right-of-way for approximately a half-mile south of DeMers Avenue to 13th Avenue S and ¼ mile east of Washington Street. Thus, the impacts would likely include:
  - acquisition of four businesses along Washington Street
  - acquisition or retrofit of the existing fire station
  - significant impacts to parking and traffic circulation at six other businesses along Washington Street
  - some acquisition of BNSF railroad property

Environmental Perspective: Widening into railroad property may involve evaluation of past soil contamination from fuel.

Cost: The costs for each of these improvements are:

- Alternative 2H: $8,000,000
- Alternative 2I: $8,000,000
- Alternative 2J: $12,000,000 (assumes acquisition of fire station)

Screening Status: **Developed following Base Confirmed traffic forecasts and analysis.**

SUMMARY

At this point, you are all aware that there is no simple solution to the PM peak hour congestion observed at the Washington Street – DeMers Avenue intersection. As demonstrated by the research completed by the MPO staff, the intersection has been targeted for significant improvements in past long-range planning efforts for nearly 30 years. This likely indicates that the intersection has had both: a) operational problems over the long-term, and b) has historically had no simple solution.

As members of the TAC, it is your role to make a decision concerning what the Transportation Plan recommendation should be for the intersection. In doing so, several questions need to be answered:

1) *Are the traffic forecasts perceived to be reasonable?* The traffic-based evaluations completed for the Plan update are sensitive to the assumptions and forecasts used to evaluate future intersection conditions. Current daily traffic volume counts at the intersection have remained relatively unchanged since the 1970s. It should be noted that comparing 1970s to 2000s daily traffic counts is not entirely an "apples-to-apples" comparison, as more recent counts will include some factoring methods to account for average day-of-week and month-of-year conditions that were not typically used in the 1970s. However, it does reveal that the general historical trend at the intersection is a relatively low to moderate level of traffic change. This general trend is not unexpected, as the intersection is located in a central part of Grand Forks, adjacent to development areas that have been relatively built-out for decades.

   The 2035 traffic forecasts, based on the travel model from ATAC, assume relatively modest growth in traffic volumes between today and 2035. Traffic volumes during the PM peak hour are very high at the intersection, accounting for over 12 percent of daily traffic. The evaluations of 2035 peak hour traffic have been relatively conservative, assuming that this high level of peaking will remain relatively unchanged over the 28 year planning horizon.

2) *What is an acceptable level of peak hour delay at the intersection?* From a traffic operations perspective, there are trade-offs between the level of delay associated with the various at-grade alternatives and the lower level of delay associated with the grade-separated alternatives. Would an at-grade improvement that improved PM peak hour operations to LOS "D" or LOS "E" be an acceptable recommendation?

3) *What are acceptable levels of impact to adjacent development?* There are significant impacts to adjacent development with all of the expansion and grade-separated alternatives at this intersection. To varying degrees the, range of alternatives involve balancing the desire to improve traffic flow through the intersection, while attempting to minimize the level of impacts to surrounding property. The at-grade improvements include varying degrees of impacts to adjacent development, while the interchange concepts both have significant development impacts.

4) *Are the intersection improvement costs within our anticipated long-range budget?* There are relatively high costs associated with any level of improvement to the intersection. As noted in the memo, the at-grade alternatives presented in tandem with the Base Confirmed Scenario are estimated to cost anywhere from $6,200,000 to $12,000,000 in 2007 dollars, while the interchange alternatives are estimated to cost approximately $20,000,000 or more in 2007 dollars. For the purposes of estimating funding capacity and project costs, we are assuming an annual growth of 4% in construction costs. At this rate of cost escalation, projects that are not constructed until the longer-term phase of our Plan update (2023 – 2035) will cost 137 percent more than in 2007.

It is anticipated that we will discuss this memo at the August 8 TAC meeting. In the mean time, if there are any questions or comments, contact Jason at (402) 952-2506.

TABLE 1. Summary of Washington Street Alternatives

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective			
	Social	Engineering	Environmental	Cost Estimate
Retained Alternatives				
System Expansion Alternatives				
2 A - Add eastbound through lane (2030 LRTP Recommendation)	* Wider DeMers roadway increases pedestrian crossing times and concerns for pedestrian safety. * Concept impacts Fire Station operations; reduces garage - street separation to 40 feet. Firetrucks parked on driveway would block the trail; parking trucks more difficult. * Current sidewalk and trail set-back, this concept would require additional (approx. 16') strip of right-of-way (R.O.W.) acquisition.	* Peak hour traffic is higher today (2006) than volumes observed in 2002 for last plan update. * Intersection currently operates at LOS "F" during PM peak hour. Concept would reduce delays, but would still be a LOS "F" by 2035.	* No business acquisition would be required. Current access points could be maintained. * Minor acquisition of railroad property would be required. Property is adjacent to BNSF yard, roundhouse and turntable - possible contamination (fuel / oil) on property?	$6,200,000
2 B - Add 3rd DeMers Ave lane for both the eastbound and westbound approaches	* Concept impacts Fire Station operations; reduces garage - street separation to 40 feet. Firetrucks parked on driveway would block the trail; parking trucks more difficult. * Wider roadway cross sections on DeMers increase pedestrian crossing times and concerns for pedestrian safety.	* Intersection currently operates at LOS "F" during PM peak hour. On its own, this improvement would reduce delays, but would still be a LOS "F" by 2035.	* Acquisition of railroad property would be required. Property is adjacent to BNSF yard, roundhouse and turntable - possible contamination (fuel / oil) on property? * No business acquisition would be required. Current access points could be maintained.	$7,800,000
2 C - Add 3rd Washington St lane for southbound traffic	* To maintain sidewalk as currently configured, would require approximately 18' strip of R.O.W. acquisition ending at 13th Ave S. * Likely four businesses would need to be acquired, significant parking / traffic circulation impacts at six other commercial properties west of Washington St.	* Currently operates at LOS "F" during PM peak hour. On its own, concept reduces delays to LOS "E" by 2035. * May require moving retaining wall north of DeMers to add through lane while maintaining SB right turn lane.	* Significant commercial impacts along Washington St south of the intersection. * Acquisition of R.O.W. at gas station in SW corner of the intersection would require additional environmental investigation.	$5,400,000
2 D - Add 3rd Washington St lane for northbound traffic	* Requires widening for 1/4 mile north of Washington; likely to University Ave. * Likely one business would need to be acquired, significant parking impacts at three other commercial properties east of Washington St corridor.	* Currently operates at LOS "F" during PM peak hour. On its own, concept reduces delays to LOS "E" by 2035. * Would require widening of Washington St underpass of BNSF rail line. NDDOT intends to reconstruct underpass at some point in the future.	* Significant commercial impacts along Washington St north of the intersection. * Acquisition of railroad property would be required. Property is adjacent to BNSF yard, roundhouse and turntable - possible contamination (fuel / oil) on property?	$2,600,000
2 G - Add a third through-lane to all approaches and SB and northbound (NB) dual left turn lanes at the DeMers Avenue / Washington Street intersection	* Requires widening for 1/4 mile each direction from intersection. * Likely four businesses would need to be acquired, significant parking impacts at six other commercial properties. * Wider roadway cross sections on DeMers and Washington increase pedestrian crossing times and concerns for pedestrian safety.	* Currently operates at LOS "F" during PM peak hour. On its own, concept reduces delays to LOS "D" by 2035. * Would require widening of Washington St underpass of BNSF rail line. NDDOT intends to reconstruct underpass at some point in the future.	* Significant commercial impacts along Washington St north and south of the intersection. * Acquisition of railroad property would be required - possible contamination (fuel / oil) on property?	$15,800,000

TABLE 1. Summary of Washington Street Alternatives

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective			
	Social	Engineering	Environmental	Cost Estimate
Interchange Concepts				
2 E - Reconstruct as a single point urban interchange (SPUI)	* Concept requires relocating the Fire Station in the Northeast corner of the interchange. Opportunity to realign / decentralize community fire services. * Loss of Washington St access for some businesses south of Demers Ave. If widening is on both sides, impacts include park, gas station and former Hardee's (now vacant). * Lost access point for businesses northeast of intersection, including Xcel Energy facility. Land locks parcels between grade separated roadways and railroad tracks. * Complicated construction period maintenance of traffic with poor traffic operations.	* Washington St would be lowered; several access points and at least one street (7th Ave) to the south will need to be closed. * Potential drainage issues with a depressed Washington St. * Westbound off-ramp would be about 200' downstream from the 4th Ave westbound on-ramp: very short weaving distance with negative effect on DeMers traffic flow. * SPUI intersection would operate at LOS "C" in 2035. Through traffic on DeMers would be grade-separated and have no delays.	* Railroad property acquisition would be required adjacent to BNSF yard / roundhouse - possible contamination (fuel / oil) on property?	$18,700,000
2 F - Reconstruct as a split-diamond interchange with 4th Ave S	* Concept affects operations into/out of Fire Station in the Northeast quadrant; likely requires relocating facility. If widening is on both sides, impacts include park, gas station and former Hardee's (now vacant). * Loss of access to both Washington Street and DeMers for some businesses south of Demers Ave. * Lost access point for businesses northeast of intersection, including Xcel Energy facility. Land locks parcels between grade separated roadways and railroad tracks. * Complicated construction period maintenance of traffic with poor traffic operations.	* Eastbound off-ramp and westbound on-ramp at DeMers/Washington; eastbound on-ramp and westbound off-ramp at 4th Ave S/Washington; a collector / distributor (C/D) road would be provided between each. * Eliminates short weave issue between Washington and 4th Ave associated with SPUI. * Washington St - C/D road intersections would operate at LOS "B" and "C" in 2035. Through traffic on DeMers would be grade-separated and have no delays. * Concept could use existing 4th Ave EB-on, WB-off ramps.	* Railroad property acquisition would be required adjacent to BNSF yard / roundhouse - possible contamination (fuel / oil) on property? * Likely impacts in park / recreation land - 4F issue	$23,500,000
Development of Alternate Corridors				
1 L - Construct 32nd Ave S crossing of Red River (2030 LRTP Recommendation)	* Would reduce traffic adjacent to 4th Ave S homes, while increasing traffic adjacent to 32nd Ave S homes. * Diverts traffic from 4th Ave S/Point Bridge neighborhood.	* Projected to divert approximately 2,000 to 3,000 vpd from Columbia Road. * Diverts approximately 6,000 vpd from Point Bridge.	* A new river crossing would require environmental documentation and agency review for approval.	$20,200,000

TABLE 1. Summary of Washington Street Alternatives

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective			
	Social	Engineering	Environmental	Cost Estimate
Alternatives Discarded Following First Level Screening				
- Convert to Roundabout	* Would require a significant radius to accommodate multiple lanes - impacts to businesses on southwest and southeast corners. * Local driver experience with roundabouts limited - none in region. Highest-volume intersection should probably not be the region's test case.	* Not conducive to PM peak traffic - high WB left turn movements would travel around 3/4 of roundabout, conflicting with high SB through movements. * Safety benefits from reduced speed, limited driver requirements for gaps. * Peak hour volumes exceed FHWA guidance for multi-lane roundabout capacity.	* Limited environmental impacts.	Medium-High
- Single-Movement Ramp / Grade Separation for Westbound to Southbound Movement	* Depending on configuration, would still require some property acquisitions at intersection.	* Provides separation of WB left-turning traffic from intersection, allows more green time to EB through movement * On its own, would provide LOS "E" in 2035 build condition, compared to LOS "F" in 2035 E+C / no-build condition.	* Business impacts	High
Expand / Improve Adjacent Corridors - Convert University Ave / 2nd Ave N to a one-way pair between Washington St and downtown. Coordinate new signal at 2nd Ave N with current University and DeMers Signals.	* Concept increases traffic volumes (and potentially speeds) along University and 2nd Ave N. * Reduced access to residences; from the opposite direction, traffic would "go around the block" to get home.	* Concept provides an improved alternate corridor connecting north downtown to Washington Street. * Added WB left-turns at Washington - University may require dual WB left-turn lanes. * On its own, this improvement would reduce delays, but would still be a LOS "F" by 2035. * Would increase SB through traffic in PM peak - might need to consider adding third SB through lane on Washington St. With SB third lane, operates at LOS "E" in 2035.	* Increased traffic impacts (volume and noise) to neighborhood along University / 2nd Ave.	Low
- Improve S 20th St between DeMers Ave and 32nd Ave	* Increases traffic volumes (and potentially speeds) along 20th St adjacent to approximately 150 homes, several apartment buildings, an elementary school and two parks/rec facilities. * Increases traffic along Safe-Route-to-School designated route (20th Street) for Ben Franklin Elementary School.	* Concept adds left-turn lanes and signals (where warranted), affecting on-street parking at intersections. Given 20th St driveway density, consider removing on-street parking and striping a continuous center left-turn lane. * Would reduce WB left-turns in PM peak at Washington - DeMers, improving operations. Added WB left-turns at DeMers - 20th (currently 220 WB lefts in PM peak) would likely require dual WB left-turn lanes. * S 20th St currently designated a collector street; improvements would likely make 20th St function more as a minor arterial. * Sufficient R.O.W. for left-turn lanes: north of 17th Ave - 80' wide, south of 17th Ave - 90' wide.	* Increased traffic noise due to higher traffic volumes. * On-street parking lost for new turn lanes.	Low to Moderate

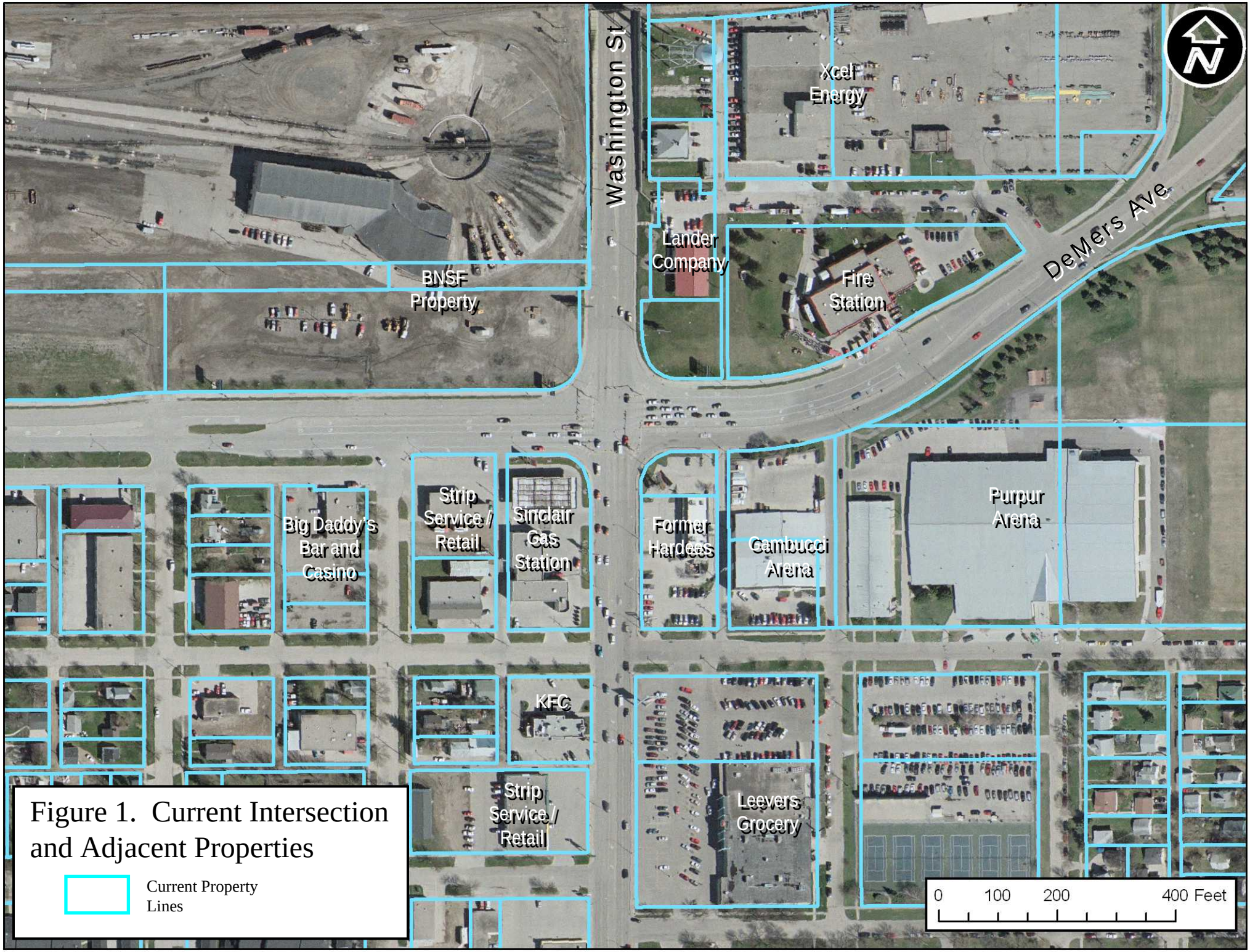


Figure 1. Current Intersection and Adjacent Properties

Current Property Lines

Washington St
DeMers Ave
N
Figure 2. Alts 2A, 2B, 2C and 2D
Add Third through Lane to All Approaches
Proposed
Lane / Movement
Current Property
Lines

Figure 3. Alt 2G

Add Third through Lane to All Approaches and Dual Left-turn Lanes on NB and SB Approaches

Proposed Lane / Movement

Current Property Lines

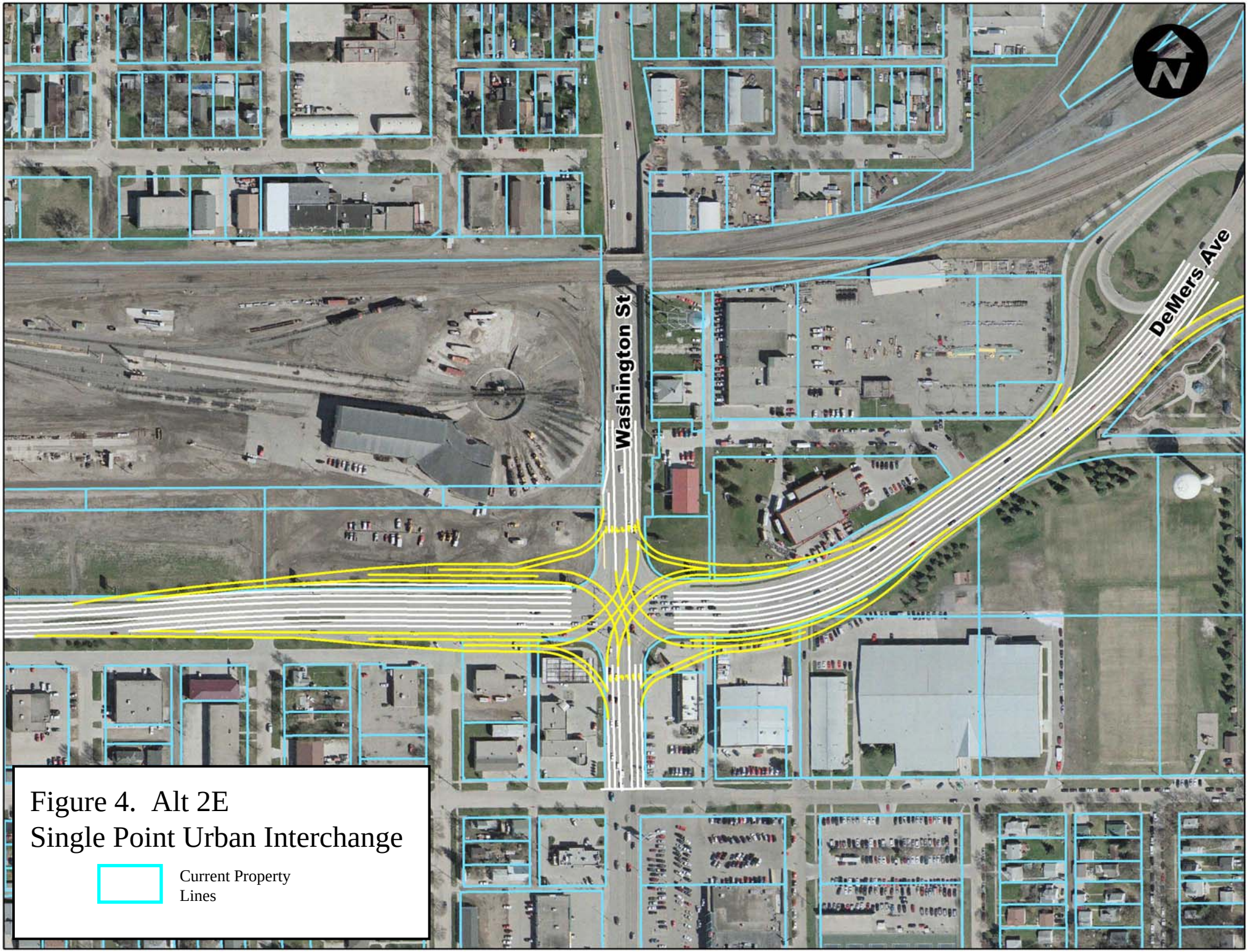


Figure 4. Alt 2E
Single Point Urban Interchange

Current Property Lines

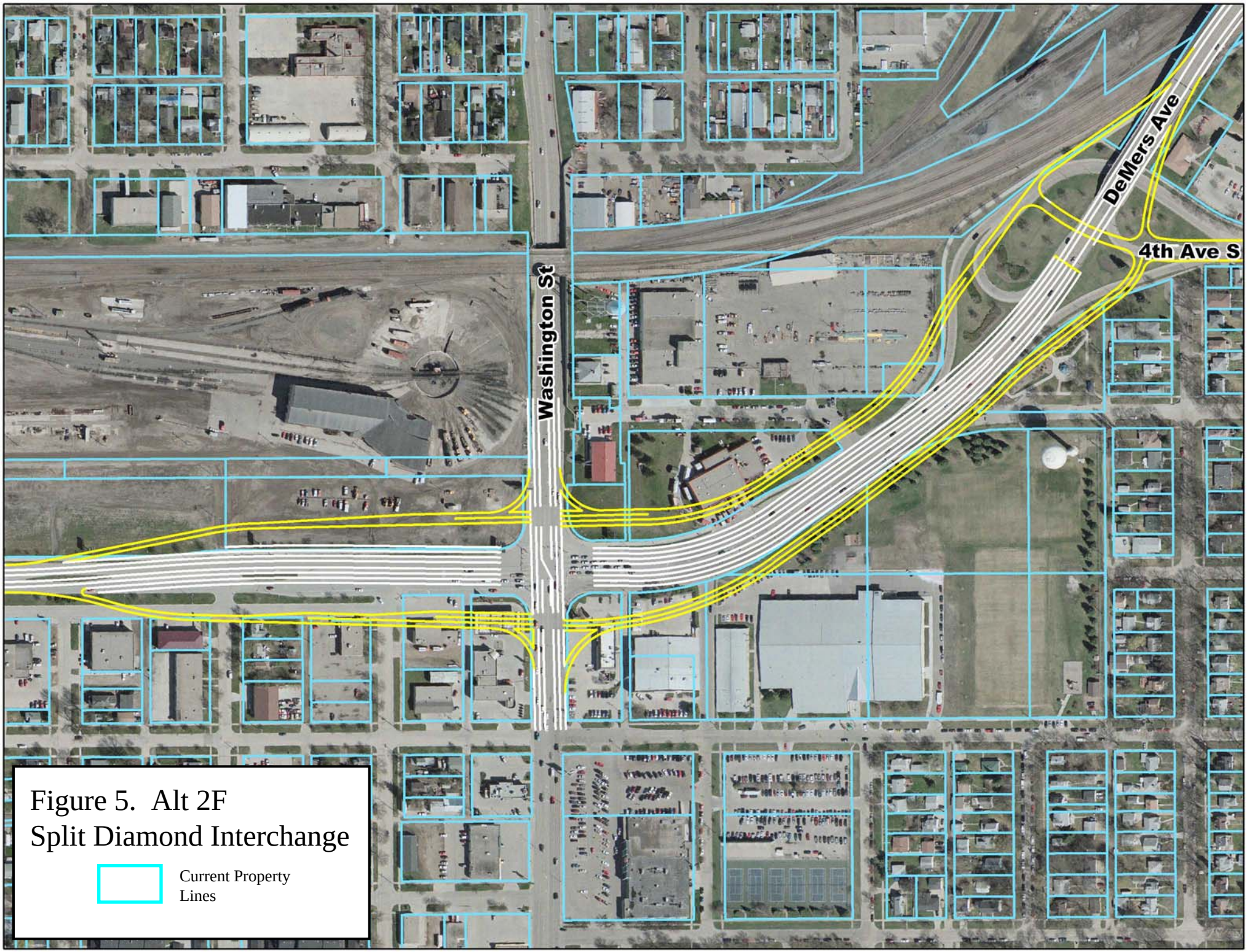


Figure 5. Alt 2F
Split Diamond Interchange

Current Property Lines

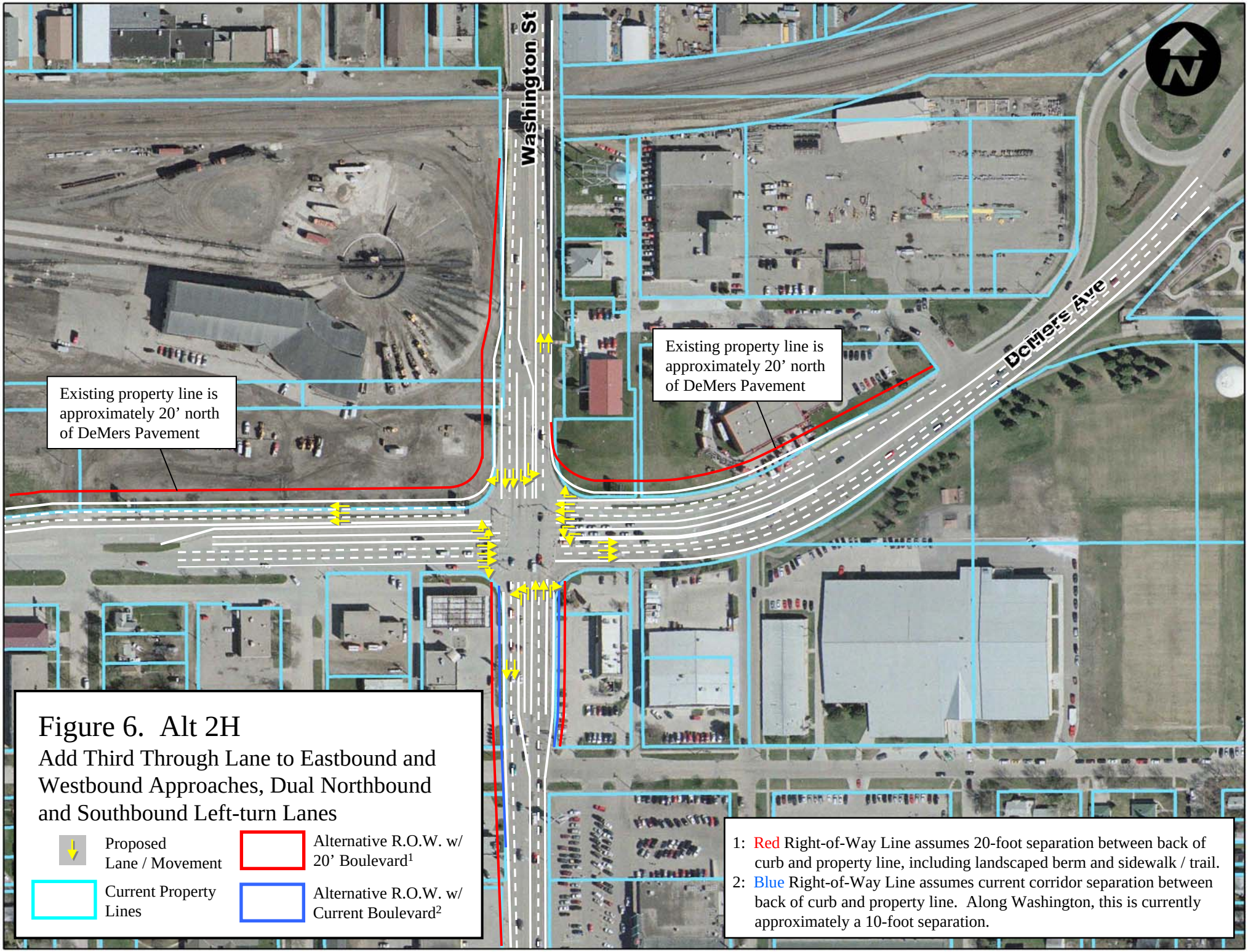


Figure 6. Alt 2H

Add Third Through Lane to Eastbound and Westbound Approaches, Dual Northbound and Southbound Left-turn Lanes

- Proposed Lane / Movement
- Alternative R.O.W. w/ 20' Boulevard[1]
- Current Property Lines
- Alternative R.O.W. w/ Current Boulevard[2]

1: Red Right-of-Way Line assumes 20-foot separation between back of curb and property line, including landscaped berm and sidewalk / trail.

2: Blue Right-of-Way Line assumes current corridor separation between back of curb and property line. Along Washington, this is currently approximately a 10-foot separation.

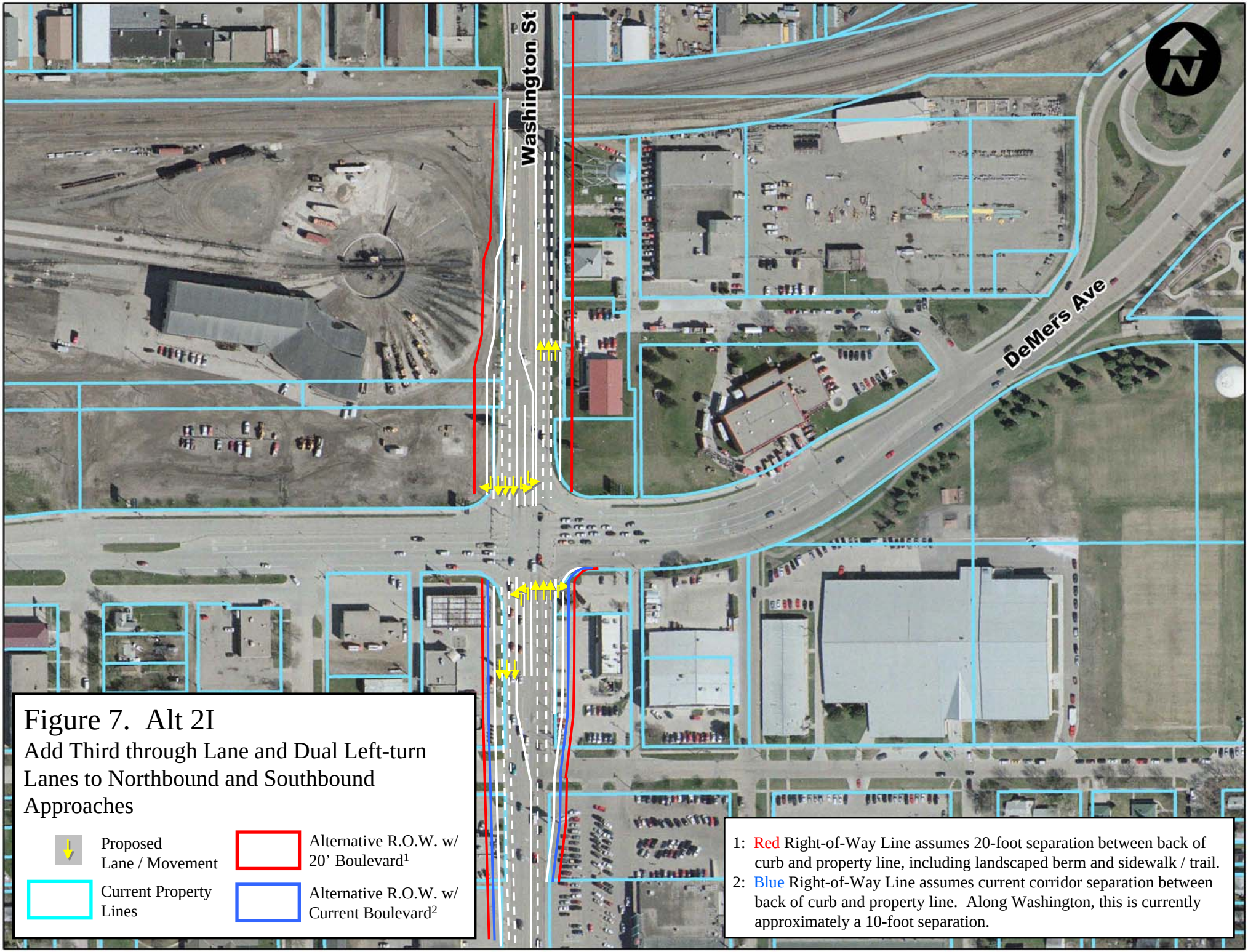


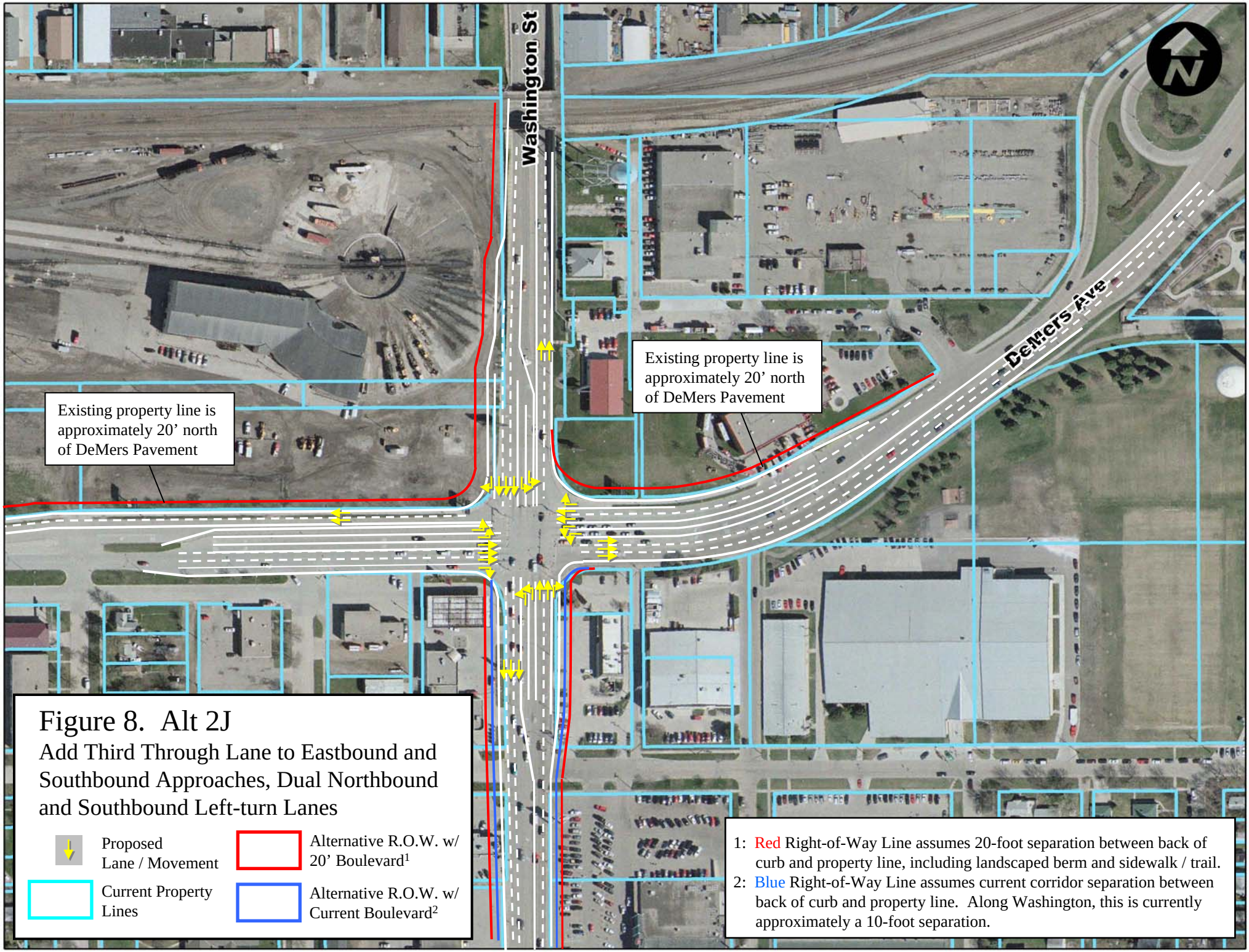
Figure 7. Alt 2I

Add Third through Lane and Dual Left-turn Lanes to Northbound and Southbound Approaches

- Proposed Lane / Movement
- Current Property Lines
- Alternative R.O.W. w/ 20' Boulevard[1]
- Alternative R.O.W. w/ Current Boulevard[2]

1: Red Right-of-Way Line assumes 20-foot separation between back of curb and property line, including landscaped berm and sidewalk / trail.

2: Blue Right-of-Way Line assumes current corridor separation between back of curb and property line. Along Washington, this is currently approximately a 10-foot separation.


Washington St
DeMers Ave
Existing property line is approximately 20' north of DeMers Pavement
Existing property line is approximately 20' north of DeMers Pavement
Figure 8. Alt 2J
Add Third Through Lane to Eastbound and Southbound Approaches, Dual Northbound and Southbound Left-turn Lanes
Proposed Lane / Movement
Current Property Lines
Alternative R.O.W. w/ 20' Boulevard[1]
Alternative R.O.W. w/ Current Boulevard[2]
1: Red Right-of-Way Line assumes 20-foot separation between back of curb and property line, including landscaped berm and sidewalk / trail.
2: Blue Right-of-Way Line assumes current corridor separation between back of curb and property line. Along Washington, this is currently approximately a 10-foot separation.

MEMORANDUM

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To: **Grand Forks/East Grand Forks MPO TAC Members**

Date: August 15, 2007

Subject: **Grand Forks / East Grand Forks Street and Highway Plan Alternative Improvement Packages**

To this point in the alternatives analysis process, project concepts have been evaluated relative to their individual positives and negatives, traffic service, adjacent area impacts and costs. As the goal of the alternatives analysis process is to prepare an integrated list of fundable and/or needed projects, URS has completed a process of combining individual project concepts into "packages" that were devised to address specific issues (congested corridors, safety, etc.), to address planning philosophies (such as emphasizing maintenance of the system through TSM relative to expansion), to address previous planning efforts (base confirmed projects).

Provided in this memorandum is a summary of the roadway improvement packages that address the needs in the region focusing on a number of different themes. The material in the memo will be a key reference during the August 22 alternatives analysis workshop.

The packages combine individual improvement alternatives, all of which have been presented to the TAC in previous meetings and documentation. The various components of each package have been assembled in complementary groupings to achieve a certain objective or represent a theme. It is URS' hope that one or a combination of the documented packages will form the nucleus of the recommended plan. It is also anticipated that some individual alternatives or subgroups of alternatives may be pulled from some packages ("ala carte style") and combined with whole packages to constitute a final recommended plan.

The memorandum will also present updated cost estimates associated with each package (shown by individual alternative). A memorandum that provides an evaluation/comparison of the project costs and funding estimates by implementation period will be available later this week. When these alternatives / packages and their future period costs are compared to the region's anticipated funding capabilities, it will be easier for TAC members to narrow down and prioritize the recommended Street and Highway Plan project list.

The improvement packages are:

- Base Confirmed Package
- Rural-to-Urban Transition Package
- Existing Congested Locations TSM Package
- Existing Congested Locations Expansion Package
- Existing Congestion TSM Package / Do Nothing at Washington / DeMers
- Achieve LOS "D" at Columbia Road / 17th Avenue Sub-Package
- Future Congested Locations Improvement Package
- System Continuity Package
- Safety Issues Package
- Rail Crossing Improvement Package
- 2030 Recommended Plan Package
- 2030 Plan Package with TSM Adjustments
- 2030 Plan Package with TSM Adjustments / Do Nothing at Washington / DeMers

IMPROVEMENT PACKAGE OVERVIEW

Base Confirmed Projects

As documented in previous memoranda, several recommended projects from the current 2030 Plan have been reconfirmed by this 2035 Plan Update, and will be included in the recommended 2035 Plan contingent upon final results of the funding analysis. The projects included the Base Confirmed list include:

- *Alternative 1I*: 42nd Street Widening, 17th Avenue South to 32nd Avenue South
- *Alternative 1K*: Merrifield Road Crossing of the Red River
- *Alternative 1L*: 32nd Avenue South Crossing of the Red River
- *Alternative 3K*: 17th Avenue Overpass of I-29
- *Alternative 3H*: Merrifield Road Interchange with I-29
- *Alternative 7A*: Central Spine Concept (2nd Ave NE / BNSF Grade Separation)

Engineering Evaluation

The Base Confirmed package provides improved connectivity across several corridors and subareas of the metropolitan area and provides some traffic diversion from congested corridors. There are reductions in travel delay due to the Base Confirmed network in several corridors. The following four intersections were forecasted to have "deficient" peak hour operations in the 2035 E+C scenario, but are forecasted to have acceptable levels of delay (LOS "C" or better) in the 2035 Base Confirmed scenario:

- Columbia Road / 13th Avenue
- Columbia Road / 24th Avenue
- 38th Street / 32nd Avenue
- 34th Street / 32nd Avenue

Additionally, traffic operations are forecasted to improve at other intersections that are forecasted to be deficient in the E+C scenario, but not to an "acceptable" level (still LOS "D" or worse):

- SB I-29 Ramps / DeMers Avenue
- NB I-29 Ramps / DeMers Avenue
- Washington Street / DeMers Avenue
- 5th Street / DeMers Avenue
- 4th Street / DeMers Avenue
- Columbia Road / 17th Avenue
- Columbia Road / 32nd Avenue

Furthermore, many elements of the Base Confirmed network provide significant improvements to regional network connectivity. It is estimated that compared to the 2035E+C scenario, the 2035 Base Confirmed package would:

- Reduce regional vehicle-miles traveled (VMT) by one (1) percent.
- Reduce regional vehicle-hours traveled (VHT) by four (4) percent.

The required FHWA documentation for the Merrifield Road / I-29 interchange, an Interstate Access Modification Request, has been approved.

Social Evaluation

Of the projects included in the Base Confirmed package, the new river crossings would have the most significant social impacts. Those impacts include:

- The bridges would divert traffic from 4th Avenue S and Belmont Road, reducing the traffic exposure of those neighborhoods.
- The bridges would increase traffic levels in neighborhoods adjacent to the new bridges, particularly along 32nd Avenue S east of Washington Street.
- There are three (3) or four (4) potential residential acquisitions associated with constructing the 32nd Avenue Bridge.

Environmental Evaluation

The river crossings have the most potential to have environmental issues associated with them. Environmental review agencies have reviewed the bridge concepts to this point in project development and no significant issues have been identified.

- The Merrifield Road Feasibility Report conducted an environmental screening and found no environmental issues which would prevent construction of the bridge.
- The 32nd Ave Bridge has been reviewed in relation to the Red River floodplain, and found to be compatible with the flood protection system. The bridge would not impact the protection levels. The bridge would remain above water during flood events, but the approaches could be flooded.

Cost Estimate

The Base Confirmed package is estimated to cost $66,500,000 in 2007 dollars. The cost estimates are broken down by project in Table 1.

Rural-to-Urban Transition Package

The rural-to-urban transition package includes those alternatives that were developed to address future arterial roadway congestion on the current urban fringe. Most of these corridors are currently two-lane, rural facilities that will require widening by 2035 to accommodate the level of traffic associated with future development beyond the current urban fringe. The projects included the Rural-to-Urban Transition list include:

- *Alternative 18A*: 4-Lane Divided 32nd Ave: 52nd St to 48th St
- *Alternative 18B*: 4-Lane Divided Columbia Rd: 34th Ave to 50th Ave
- *Alternative 18C*: 4-Lane Divided Washington St: 48th Ave to 57th Ave
- *Alternative 18D*: 3-Lane 47th Ave South, Columbia Rd and Washington St
- *Alternative 18E*: Widen Central Ave 17th St to dike

Engineering Evaluation

The Rural-to-Urban Transition package provides sufficient capacity for approximately 4 miles of urbanizing arterial corridors through 2035; these 4 miles of roadway would be congested if not improved. The improvements associated with this package would also provide a consistent design with adjacent urbanized roadway segments. Signalization and turn lanes are assumed at half-mile spacing, where the widened arterials intersect with collector and minor arterial roadways.

When parcels adjacent to the arterials are redeveloped, sufficient access management needs to be in place to ensure consistency with the Cities' guidelines. This will ensure safe access to developments, while maintaining acceptable traffic flow through the corridor.

Social Evaluation
There are limited social impacts anticipated with these projects. Right-of-Way widths in the corridors are sufficient to support the recommended cross-sections. As traffic levels increase along these corridors over the planning horizon, so will traffic noise levels.

Environmental Evaluation
There are limited environmental impacts anticipated with these projects. .

Cost Estimate
The Rural-to-Urban Transition package is estimated to cost $15,800,000 in 2007 dollars. The cost estimates are broken down by project in Table 1.

Existing Congested Locations TSM Package

The Existing Congested Locations TSM package includes projects that address the three locations in the metropolitan area that currently identified to have deficient traffic operations. These three locations are:

- Columbia Road / 17th Avenue South Intersection
- Washington Street / DeMers Avenue Intersection
- DeMers Avenue through downtown Grand Forks / East Grand Forks

The following improvements have been considered at each location:

- *Columbia Road / 17th Avenue*: A combination of Columbia Road TSM Alternatives, including:
  - *Alternative 1A*: Add a third southbound Columbia Road lane between the DeMers ramp and 13th Ave.
  - *Alternative 1C*: 17th Avenue / Columbia Road Intersection Expansion
  - *Alternative 1E*: 20th Avenue S Extension to Columbia Road

  These three projects together are anticipated to provide LOS "C" through 2035.
- *Washington Street / DeMers Avenue Intersection*: The TSM Alternative included at this location was *Alternative 2H*, adding additional eastbound and westbound through lanes and dual northbound and southbound left-turn lanes to the Washington Street / DeMers Avenue intersection. A range of TSM packages have been considered at this intersection throughout the planning process. For now, Alternative 2H has been placed in this package as the at-grade alternative to consider. The improvement is anticipated to provide LOS "D" through 2035 with the Base Confirmed Package in place.
- *DeMers Avenue Through downtown*: Alternative 4A has been included in this package. Alternative 4A would implement the CBD Traffic Signal Study recommended system upgrades, including signal system coordination, retiming and removal of some signals.

Engineering Evaluation

- *Columbia Road / 17th Avenue:* The alternative would provide LOS "C" through 2035. The extension of 20th Avenue South to Columbia Road is consistent with Columbia Road Corridor Study recommendation. Alternative 1A was included to improve the southbound merging issue between the DeMers Avenue Ramp and 11th Avenue / 13th Avenue.
- *Washington Street / DeMers Avenue Intersection*: The at-grade alternative would provide LOS "D" in 2035.
- *CBD Traffic Signal Upgrades*: Signal interconnect, timing and removal project would provide acceptable traffic operations through the corridor in 2035.

Social Evaluation

- *Columbia Road / 17th Avenue:* Depending on the setback distance between property line and roadway, the TSM improvements would:
  - Impact the businesses on the northeast and northwest corners of the Columbia Road / 17th Avenue intersection. This may include some lost parking lot space. The dual left-turn lanes on 17th Avenue would make it necessary to convert the driveways at both businesses to right-in, right-out.
  - The 3rd Southbound lane from the DeMers Avenue off-ramp would require some minor right-of-way acquisition into green space adjacent to the hospital.
- *Washington Street / DeMers Avenue Intersection*: The at-grade alternative would require acquisition of the fire station and a significant amount of BNSF railroad right-of-way. Minor right-of-way acquisition would be required on the southwest and southeast corners to accommodate the added northbound left-turn lane.
- *CBD Traffic Signal Upgrades*: Limited social impacts.

Environmental Evaluation

- *Columbia Road / 17th Avenue:* The alternative would have some level of impacts to Apollo Park / Kraft Field.
- *Washington Street / DeMers Avenue Intersection*: Limited environmental impacts.
- *CBD Traffic Signal System Upgrade*: Limited environmental impacts.

Cost Estimate

The Existing Congested Locations TSM package is estimated to cost $11,700,000 in 2007 dollars. The cost estimates are broken down by project in Table 1.

Existing Congested Locations Expansion Package

The Existing Congested Locations Expansion package addresses the same three locations as the Existing Congested Locations TSM Package, but would include "expansion" improvements at the Columbia Road / 17th Avenue and Washington Street / DeMers Avenue intersection:

- *Columbia Road*: This package assumes *Alternative 1F*: Widen Columbia Road to 7-Lanes between DeMers and 32nd Avenue. The 7-lane widening in combination with adding right turn lanes to the northbound, southbound and eastbound approaches would provide LOS "C" at the Columbia / 17th intersection through 2035.
- *Washington Street / DeMers Avenue Intersection*: This package assumes *Alternative 2E*: Reconstruct the Washington Street / DeMers Avenue intersection as a single-point urban interchange (SPUI). The SPUI would provide LOS "C" or better traffic operations through 2035.

Alternative 4A, which would implement the CBD Traffic Signal Study recommended system upgrades, has also been included in this package.

Engineering Evaluation

- *Columbia Road*: The alternative would provide LOS "C" through 2035 without adding dual left-turn lanes at the 17th Avenue intersection (with the Base Confirmed package in place). Right-turn lanes would be added to the northbound, southbound and eastbound approaches of the Columbia Road / 17th Avenue intersection.
- *Washington Street / DeMers Avenue Intersection*: The SPUI alternative would provide LOS "C" for traffic at the new DeMers Ramps / Washington Street intersection; eastbound and westbound traffic on DeMers would be separated from Washington Street and would not stop at the intersection. The SPUI would also require closure of 7th Avenue and several driveways.
- *CBD Traffic Signal Upgrades*: Signal interconnect, timing and removal project would provide acceptable traffic operations through the corridor in 2035.

Social Evaluation

- *Columbia Road*: As documented in previous memoranda, the 7-lane widening of Columbia Road would have varying impacts depending on the setback distance between the property line and roadway. These impacts could range between:
  - Impacting parking at 3 to 8 businesses
  - Requiring the acquisition of at least one business, the acquisition of 3 to 13 residences and acquisition of the lift station at 11th Avenue.
- *Washington Street / DeMers Avenue Intersection*: The SPUI would have significant impacts to the development adjacent to the intersection. In addition to the acquisition of the fire station and BNSF railroad right-of-way, the social impacts would include:
  - Loss of Washington St access for some businesses south of Demers Ave.

  - Loss of the access point for the businesses northeast of intersection, including Xcel Energy facility. This driveway loss would land lock the parcels between the grade-separated roadways and the railroad tracks, resulting in property acquisitions.
  - It is anticipated that during construction, maintaining traffic flow would be difficult and additional traffic delays would occur.
- *CBD Traffic Signal Upgrades*: Limited social impacts.

Environmental Evaluation

- *Columbia Road*: The 7-lane widening would have some impacts to Apollo Park / Kraft Field. This alternative would also impact the sanitary lift station at 11th Avenue.
- *Washington Street / DeMers Avenue Intersection*: The SPUI would include some widening into Parks and Recreation property at Gambucci and Purpur Arenas.
- *CBD Traffic Signal System Upgrade*: Limited environmental impacts.

Cost Estimate

The Existing Congested Locations Expansion package is estimated to cost $33,000,000 in 2007 dollars. The cost estimates are broken down by project in Table 1.

Existing Congestion TSM Package / Do Nothing at Washington / DeMers

This package is the same as the Existing Congested Locations TSM Package, but would make no improvements at the Washington Street / DeMers Avenue intersection. The option of doing nothing / making no recommendation for improvements at this intersection is a potential option. If no improvements are made at the intersection the operations at the intersection would be LOS "E/F" through 2035 (with the Base Confirmed projects constructed).

The Existing Congestion TSM Package / Do Nothing at Washington / DeMers is estimated to cost $3,700,000 in 2007 dollars. The cost estimates are broken down by project in Table 1.

Achieve LOS "D" at Columbia Road / 17th Avenue Sub-Package

This sub-package would provide improved traffic operations at Columbia Road / 17th Avenue (LOS "D"), and would limit the level of impacts associated with the TSM improvements. This sub-package is presented as an option to substitute in place of the Columbia Rd improvements presented in the Existing Congested Location TSM package. The improvements at Columbia Road / 17th Avenue would include adding northbound, southbound and eastbound right-turn lanes, in addition to extending 20th Avenue South to Columbia Road.

This sub-package is estimated to cost $1,200,000 in 2007 dollars. The cost estimates are broken down by project in Table 1.

Future Congested Locations Improvement Package

The Future Congested Locations Improvement package includes projects that address the locations in the metropolitan area that are forecasted to have "deficient" traffic operations by 2035. These locations are:

- 32nd Avenue / Columbia Road Intersection
- 32nd Avenue / 38th Street Intersection
- DeMers Avenue, 48th Street to I-29
- Access to the 32nd Avenue Bridge from Minnesota

The projects included the Future Congested Locations Improvement list include:

- *Alternative 3B:* 32nd / Columbia: NB and WB Dual Lefts
- *Alternative 3N:* 38th St / 32nd Ave: Add SB Right Turn Lane
- *Alternative 8A:* Signalize 48th / DeMers and I-29 / DeMers Ramps
- *Alternative 22B:* New East-West Arterial Connecting the 32nd Ave Bridge to Bygland Rd
- *Alternative 22D:* WB Left-Turn Lane at Bygland Rd / CR 58
- *Alternative 22E:* Signalize TH 220 / US 2

Engineering Evaluation

The alternatives included in this package would provide LOS "C" or better operations through 2035.

Social Evaluation

There are limited social impacts associated with this package. Depending on the timing of the project, Alternative 22B connecting Bygland Road to the 32nd Avenue Bridge may require conversion of agricultural land. However, the land surrounding this new roadway is anticipated to be redeveloped as commercial and residential by 2035.

Environmental Evaluation

There would be limited environmental impacts associated with this package.

Cost Estimate

The Future Congested Locations Improvement Sub-Package is estimated to cost $5,450,000 in 2007 dollars. The cost estimates are broken down by project in Table 1.

System Continuity Package

The System Continuity Package includes alternatives that would provide new / enhanced connections across the roadway system. The projects that are included on this list are:

- *Alternative 1G*: 47th Ave S / I-29 Interchange
- *Alternative 3J*: 36th Ave S, 38th St to Washington St
- *Alternative 3M*: Realign 42nd St - Reconfigure NB I-29 Ramps at 32nd Ave

Engineering Evaluation

The alternatives included in this package would provide improved connections to existing and planned development areas:

- *47th Ave S / I-29 Interchange:* This alternative would:
  - Provide direct access to residential and employment growth areas of south Grand Forks
  - Divert significant levels of traffic from the 32nd Avenue South and Columbia Road Corridors. On its own, the interchange would divert:
    - 5,000 to 8,000 vehicles per day (VPD) from Columbia Road north of 32nd Avenue.
    - 2,000 to 10,000 VPD from 32nd Avenue west of Columbia Road.
  - On its own, the interchange is anticipated to reduce regional vehicle-hours traveled by nearly 2 percent.
- *36th Ave South Backage Road:* This alternative would provide a continuous, development-oriented backage road for existing / planned development south of 32nd Avenue south. The alternative would widen 36th Ave S to 3-Lanes along its current section between 34th St and 20th St, and would extend the 3-lane section: 1) east, from 20th St to Washington St and 2) west from 38th St to 34th St. The improved 36th Avenue would also divert approximately 2,000 locally-generated daily trips from the 32nd Avenue corridor.
- *Realign 42nd Street and Reconfigure Northbound I-29 Ramps at 32nd Avenue*: This concept would "straighten" 42nd Avenue so that it would have a more direct connection to 32nd Avenue, particularly more direct access to the I-29 interchange. The concept would include a new, signalized 42nd Street / NB I-29 Off-Ramp intersection. The northbound I-29 on-ramps would be separated into to separate eastbound and westbound ramps. This ramp configuration eliminates the need for the 32nd Avenue on-ramps to be signalized.

Social Evaluation

- The 47th Avenue Interchange would increase traffic volumes adjacent to an RV Park / Campground.

- The 36th Avenue backage road would introduce increased traffic adjacent to existing homes south of 36th Avenue at 31st Street. The concept would avoid the Target back driveway by moving the 36th Avenue alignment between 38th St and 34th St slightly to the south.
- The 42nd Street / 32nd Avenue South / I-29 Interchange Realignment will move the northbound off-ramp closer to the hotel in the southeast quadrant of the interchange.

Environmental Evaluation

There would be limited environmental impacts associated with this alternative. There is currently a farmstead west of 36th / Washington intersection. This area is part of a planned future residential and commercial development by 2035, and farmstead will likely be redeveloped.

Cost Estimate

The System Continuity Package is estimated to cost $27,900,000 in 2007 dollars. The cost estimates are broken down by project in Table 1.

Safety Issues Package

The Safety Issues Package includes projects developed to address locations that were identified in either: 1) the critical crash location evaluation completed by URS, or 2) through the issues identification process via public / TAC comment.

The following alternatives were included in the Safety Issues Package:

- *Alternative 3A*: 34th St / 32nd Ave Improvements
- *Alternative 5B*: Channelize 29th St at 24th Ave
- *Alternative 6A*: Bygland Road Turn Lanes
- *Alternative 10A*: Signalize 36th / Columbia and 3/4 access at 34th / Columbia
- *Alternative 13A*: 14th St / 11th Ave Parking Restrictions
- *Alternative 14A*: Gateway Drive Access Management
- *Alternative 17D*: North Access Road at Crystal Sugar
- *Alternative 20A*: Extend NB I-29 DeMers Ramp

Engineering Evaluation

The following alternatives would address intersections that were identified as having higher than expected crash rates:

- *Alternative 3A*: 34th St / 32nd Ave Improvements
- *Alternative 5B*: Channelize 29th St at 24th Ave
- *Alternative 13A*: 14th St / 11th Ave Parking Restrictions
- *Alternative 14A*: Gateway Drive Access Management

Social Evaluation
The 29th Street / 24th Avenue intersection improvements would affect access into the retail development to the south. The 14th Street / 11th Avenue S parking restrictions would cause the loss of some on-street parking.

Environmental Evaluation
There would be limited environmental impacts associated with this alternative.

Cost Estimate
The Safety Issues Package is estimated to cost $4,350,000 in 2007 dollars. The cost estimates are broken down by project in Table 1.

Rail Crossing Improvement Package

The Rail Crossing Improvement Package includes improvements to rail crossings identified by the public and TAC as issues. The alternatives in this package include:

- *Alternative 15A*: Gateway Dr / BNSF Crossing west of 5th St, Crossing Gates & Striping
- *Alternative 16A*: University Ave / BNSF Crossing west of 9th St, Signals & Signing
- *Alternative 19A*: DeMers Avenue / 42nd / BNSF Grade Separation

Engineering Evaluation
The DeMers Avenue / 42nd Street / BNSF grade separation would eliminate traffic delays along 42nd Street associated with train operations on the BNSF line. The crash analysis did not identify any car-train crashes at these three intersections over the analysis period.

Social Evaluation
The DeMers Avenue / 42nd Street railroad grade separation would include right-of-way impacts to University property. The grade separation would improve travel reliability for travelers going to / from UND and northwest Grand Forks.

Environmental Evaluation
There would be limited environmental impacts associated with this package.

Cost Estimate
The Rail Crossing Improvement Package is estimated to cost $17,300,000 in 2007 dollars. The cost estimates are broken down by project in Table 1.

2030 Recommended Plan Package

The 2030 Recommended Plan Package includes the improvements that were included on the recommended list in the current Street and Highway Plan. The alternatives in this package include:

- *Alternative 1F*: 7-Lane Columbia Road
- *Alternative 1I*: Widen 42nd Street to 4 Lanes, 17th Ave to 32nd Ave[1]
- *Alternative 1K*: Merrifield Road Red River Crossing[1]
- *Alternative 1L*: 32nd Ave S Red River Crossing[1]
- *Alternative 2A*: Add Third Eastbound Lane to Washington / DeMers Intersection
- *Alternative 3E*: Reconfigure 32nd Avenue / I-29 Interchange as Partial Cloverleaf
- *Alternative 3G*: Widen 32nd Avenue to 7-Lanes, I-29 to Washington St
- *Alternative 3H*: Merrifield Road Interchange[1]
- *Alternative 3K*: 17th Ave S Overpass of I-29[1]
- *Alternative 7A*: Central Spine Concept[1]
- *Alternative 14A*: Implement Gateway Drive Access Management Study Recommendations
- *Alternative 19A*: DeMers / 42nd / BNSF Grade Separation

Additionally, two projects from the current TIP were included in the 2030 recommended list: the 48th Street south extension and reconstruction and the 5th Avenue NW / Gateway Drive intersection.

Engineering Evaluation

The following bullets summarize the engineering evaluation of those projects not included in the Base Confirmed package:

- *Alternative 1F*: 7-Lane Columbia Road. As previously documented in the Existing Congested Locations TSM Package, TSM improvements at intersections in the Columbia Road corridor have been identified as a potential alternative to a 7-Lane widening of the Columbia Road corridor. Either set of improvements are anticipated to provide sufficient capacity through the planning horizon.
- *Alternative 2A*: Add Third Eastbound Lane to Washington / DeMers Intersection. This alternative would reduce delays at the intersection and provide LOS "E" operations through the planning horizon. Additional alternatives have been developed that provide even greater reductions in travel delay at the intersection. For instance, Alternative 2H: Adding eastbound and westbound through lanes on DeMers, included in the Existing Congested Locations TSM Package would have lower delays and would provide LOS "D" through the planning horizon. Additional at-grade and interchange alternatives have been reviewed through the course of this

1 Included in Base Confirmed Package.

study which would provide even more reduction in travel delays at the intersection.

- *Alternative 3E*: Reconfigure 32nd Avenue / I-29 Interchange as Partial Cloverleaf and *Alternative 3G*: Widen 32nd Avenue to 7-Lanes, I-29 to Washington St were related alternatives in a widened 32nd Avenue South corridor. Alternative 3E would also accommodate a realigned / straightened 42nd Street, similar to Alternative 3M. The current planning update has concentrated on focused, intersection-based improvements to provide sufficient capacity (LOS "C" or better) for the 32nd Avenue corridor through 2035.
- *Alternative 19A*: DeMers / 42nd Street Grade Separation from the BNSF. As noted in the Rail Crossing Improvement package, this concept The DeMers Avenue / 42nd Street / BNSF grade separation would eliminate traffic delays along 42nd Street associated with train operations on the BNSF line.

Social Evaluation
Those non-confirmed alternatives with notable social impacts include:

- *Alternative 1F*: 7-Lane Columbia Road. As noted in the Existing Congested Locations Expansion Package documentation, this concept would impact / require the acquisition of several businesses and residences in the corridor. The TSM alternative would significantly reduce the level of impacts in the corridor.
- *Alternative 2A*: Add Third Eastbound Lane to Washington / DeMers Intersection. Of the alternatives reviewed at this intersection, this improvement would require the least amount of right-of-way acquisition at the intersection. It is anticipated that the fire station would still be acquired in this scenario.
- *Alternative 19A*: DeMers / 42nd Street Grade Separation from the BNSF. This alternative would require the acquisition of some UND property.

Environmental Evaluation
The 7-lane Columbia widening would have some impacts to Apollo Park / Kraft Field and would also impact the sanitary lift station at 11th Avenue.

Cost Estimate
The 2030 Recommended Plan Package is estimated to cost $131,600,000 in 2007 dollars. The cost estimates are broken down by project in Table 1.

2030 Plan Package with TSM Adjustments

This package is the same as the 2030 Recommended Plan Package, but would change the following projects:

- The 2030 Plan Package with TSM adjustments would replace *Alternative 1F* (7-Lane Columbia Road) with *Alternatives 1A* (Add 3rd SB Columbia Rd lane between DeMers on-ramp and 13th Ave), *1C* (Add dual left-turn lanes for all approaches at Columbia / 17th) and *1E* (Extend 20th Ave S to Columbia Rd).
- The 2030 Plan Package with TSM adjustments would replace *Alternative 2A* (Add Eastbound through lane to DeMers at Washington) with *Alternative 2H* (Add

Eastbound and Westbound through lanes to DeMers, and add dual northbound and southbound left-turn lanes to Washington).

- The 2030 Plan Package with TSM adjustments would replace *Alternative 3E* (Reconfigure 32nd Avenue / I-29 Interchange as Partial Cloverleaf) with *Alternative 3M* (Realign 42nd St - Reconfigure Northbound I-29 Ramps at 32nd Ave).
- The 2030 Plan Package with TSM adjustments would replace *Alternative 3G* (Widen 32nd Avenue to 7-Lanes) with *Alternatives 3A (*34th St / 32nd Ave Improvements), *3B* (NB and WB Dual Lefts at 32nd / Columbia) and *3N* (SB Right turn lane at 32nd / 38th).

Engineering Evaluation

These TSM adjustments have been previously documented, but in summary:

- The improvements to Washington / DeMers are anticipated to provide LOS "D" through the 2035 planning horizon. The remaining improvements would provide LOS "C".
- Safety issues are addressed with *Alternative 1A* and *Alternative 3A*.
- *Alternative 3M* would realign the 42nd Street corridor to connect directly to 32nd Avenue. It is similar to the 2030 recommended *Alternative 3E,* but would not require a widening of the I-29 Bridge and would not reconfigure the southbound I-29 ramps.

Social Evaluation

- The Columbia Road TSM projects have reduced impacts to adjacent development compared to the 7-lane Columbia widening alternative.
- Alternative 2H would require more right-of-way acquisition to the north. Minor right-of-way acquisition would be required on the southwest and southeast corners to accommodate the added northbound left-turn lane.

Environmental Evaluation

This package would have similar environmental impacts as the 2030 Recommended Plan Package.

Cost Estimate

The 2030 Plan Package with TSM Adjustments is estimated to cost $102,810,000 in 2007 dollars. The cost estimates are broken down by project in Table 1.

2030 Plan Package with TSM Adjustments / Do Nothing at Washington / DeMers

This package is the same as the 2030 Plan Package with TSM Adjustments, but would not include any adjustments at the Washington Street / DeMers Avenue intersection. If no improvements are made at the intersection the operations at the intersection would be LOS "E/F" through 2035 (with the Base Confirmed projects constructed).

The 2030 Plan Package with TSM Adjustments / Do Nothing at Washington / DeMers is estimated to cost $94,810,000 in 2007 dollars. The cost estimates are broken down by project in Table 1.

ACTION REQUESTED

Please review the package summaries provided in this memorandum. We hope that one or a combination of the documented packages will form the nucleus of the recommended plan, but anticipate that some individual or groups of alternatives may be pulled from some packages and combined with whole packages to constitute a final recommended plan.

A memo summarizing future period project costs and funding estimates will be available later this week. With this information in hand, the group should be equipped to assemble a prioritized recommended project list at the August 22 meeting.

If you have any questions or comments about this memo, please contact Jason Carbee at 402-952-2506.

TABLE 1. Package Cost Estimates by Alternative

	Package / Alternative	2007 Cost Estimate
Base Confirmed Package		
1I	Widen 42nd Street to 4 Lanes, 17th Ave to 32nd Ave	$4,700,000
1K	Merrifield Road Red River Crossing	$16,900,000
1L	32nd Ave S Red River Crossing	$20,200,000
3H	Merrifield Road Interchange	$7,100,000
3K	17th Ave S Overpass of I-29	$5,800,000
7A	Central Spine Concept	$11,800,000
	Package Total	**$66,500,000**
Rural-to-Urban Transition Package		
18A	4-Lane 32nd Ave: 52nd St to 48th St	$1,100,000
18B	4-Lane Columbia Rd: 34th Ave to 50th Ave	$5,300,000
18C	4-Lane Washington St: 48th Ave to 57th Ave	$2,900,000
18D	3-Lane 47th Ave South, Columbia Rd and Washington St	$2,500,000
18E	Widen Central Ave: 17th St to dike	$4,000,000
	Package Total	**$15,800,000**
Existing Congested Locations TSM Package		
1A	Add 3rd SB Columbia Rd lane between DeMers on-ramp and 13th Ave	$300,000
1C	Columbia / 17th: Add dual left-turn lanes for all approaches	$2,500,000
1E	20th Ave S Extension to Columbia Road	$400,000
2H	DeMers / Washington: Add Eastbound and Westbound Through Lanes	$8,000,000
4A	CBD Traffic Signal System Upgrade	$500,000
	Package Total	**$11,700,000**
Existing Congested Locations Expansion Package		
1F	7-Lane Columbia Road	$12,500,000
2E	Single-Point Urban Interchange	$20,000,000
4A	CBD Traffic Signal System Upgrade	$500,000
	Package Total	**$33,000,000**
Existing TSM Package / Do Nothing at Washington / DeMers		
1A	Add 3rd SB Columbia Rd lane between DeMers on-ramp and 13th Ave	$300,000
1C	Columbia / 17th: Add dual left-turn lanes for all approaches	$2,500,000
1E	20th Ave S Extension to Columbia Road	$400,000
4A	CBD Traffic Signal System Upgrade	$500,000
	Package Total	**$3,700,000**

TABLE 1. Package Cost Estimates by Alternative

	Package / Alternative	2007 Cost Estimate
Achieve LOS "D" at Columbia Road / 17th Avenue Sub-Package		
1A	Add 3rd SB Columbia Rd lane between DeMers on-ramp and 13th Ave	$300,000
1E	20th Ave S Extension to Columbia Road	$400,000
1N	Columbia /17th: Add NB, SB and EB Right-turn lanes	$500,000
	Sub-Package Total	**$1,200,000**
Future Congested Locations Improvement Package		
3B	32nd / Columbia: NB and WB Dual Lefts	$150,000
3N	38th St / 32nd Ave: Add SB Right Turn Lane	$200,000
8A	Signalize 48th / DeMers and I-29 / DeMers Ramps	$700,000
22B	New East-West Arterial Connecting the 32nd Ave Bridge to Bygland Rd	$4,000,000
22D	WB Left-Turn Lane at Bygland Rd / CR 58	$100,000
22E	Signalize TH 220 / US 2	$300,000
	Package Total	**$5,450,000**
System Continuity Package		
1G	47th Ave S / I-29 Interchange	$17,500,000
3J	36th Ave S as Backage Road	$3,400,000
3M	Realign 42nd St / Reconfigure NB I-29 / 32nd Ave Ramps	$7,000,000
	Package Total	**$27,900,000**
Safety Issues Package		
3A	34th St / 32nd Ave Improvements	$360,000
5B	Channelize 29th St at 24th Ave	$50,000
6A	Bygland Road Turn Lanes	$350,000
10A	Signalize 36th / Columbia and 3/4 access at 34th / Columbia	$300,000
13A	11th Ave / 14th St Parking Restrictions	$0
14A	Gateway Drive Access Management	$200,000
17D	North Access Road at Crystal Sugar	$3,300,000
20A	Extend NB I-29 DeMers Ramp	$150,000
	Package Total	**$4,710,000**
Rail Crossing Improvement Package		
15A	Gateway / BNSF west of 5th St, Crossing Gates & Striping	$200,000
16A	University / BNSF west of 9th St, Signals & Signing	$200,000
19A	DeMers / 42nd / BNSF Grade Separation	$16,900,000
	Package Total	**$17,300,000**

TABLE 1. Package Cost Estimates by Alternative

	Package / Alternative	2007 Cost Estimate
2030 Recommended Plan Package		
1F	7-Lane Columbia Road	$12,500,000
1I	Widen 42nd Street to 4 Lanes, 17th Ave to 32nd Ave	$4,700,000
1K	Merrifield Road Red River Crossing	$16,900,000
1L	32nd Ave S Red River Crossing	$20,200,000
2A	Add Third Eastbound Lane to Washington / DeMers Intersection	$6,200,000
3E	Reconfigure 32nd Avenue / I-29 Interchange as Partial Cloverleaf	$17,500,000
3G	Widen 32nd Avenue to 7-Lanes, I-29 to Washington St	$11,500,000
3H	Merrifield Road Interchange	$7,100,000
3K	17th Ave S Overpass of I-29	$5,800,000
7A	Central Spine Concept	$11,800,000
14A	Implement Gateway Drive Access Management Study Recommendations	$500,000
19A	DeMers / 42nd / BNSF Grade Separation	$16,900,000
TIP Projects (Already Programmed)		
	48th Street Extension, Reconstruction	$8,750,000
	5th Avenue NE / Gateway Drive Intersection	$1,290,000
	Package Total (Not Including TIP Projects)	**$131,600,000**
2030 Plan Package with TSM Adjustments		
1A	Add 3rd SB Columbia Rd lane between DeMers on-ramp and 13th Ave	$300,000
1C	Columbia / 17th: Add dual left-turn lanes for all approaches	$2,500,000
1E	20th Ave S Extension to Columbia Road	$400,000
1I	Widen 42nd Street to 4 Lanes, 17th Ave to 32nd Ave	$4,700,000
1K	Merrifield Road Red River Crossing	$16,900,000
1L	32nd Ave S Red River Crossing	$20,200,000
2H	DeMers / Washington: Add Eastbound and Westbound Through Lanes	$8,000,000
3A	34th St / 32nd Ave Improvements	$360,000
3M	Realign 42nd St / Reconfigure NB I-29 / 32nd Ave Ramps	$7,000,000
3B	32nd / Columbia: NB and WB Dual Lefts	$150,000
3N	38th St / 32nd Ave: Add SB Right Turn Lane	$200,000
3H	Merrifield Road Interchange	$7,100,000
3K	17th Ave S Overpass of I-29	$5,800,000
7A	Central Spine Concept	$11,800,000
14A	Implement Gateway Drive Access Management Study Recommendations	$500,000
19A	DeMers / 42nd / BNSF Grade Separation	$16,900,000
TIP Projects (Already Programmed)		
	48th Street Extension, Reconstruction	$8,750,000
	5th Avenue NE / Gateway Drive Intersection	$1,290,000
	Package Total (Not Including TIP Projects)	**$102,810,000**

TABLE 1. Package Cost Estimates by Alternative

	Package / Alternative	2007 Cost Estimate
2030 Plan Package with TSM Adjustments - Do Nothing at Washington / DeMers		
1A	Add 3rd SB Columbia Rd lane between DeMers on-ramp and 13th Ave	$300,000
1C	Columbia / 17th: Add dual left-turn lanes for all approaches	$2,500,000
1E	20th Ave S Extension to Columbia Road	$400,000
1I	Widen 42nd Street to 4 Lanes, 17th Ave to 32nd Ave	$4,700,000
1K	Merrifield Road Red River Crossing	$16,900,000
1L	32nd Ave S Red River Crossing	$20,200,000
3A	34th St / 32nd Ave Improvements	$360,000
3M	Realign 42nd St / Reconfigure NB I-29 / 32nd Ave Ramps	$7,000,000
3B	32nd / Columbia: NB and WB Dual Lefts	$150,000
3N	38th St / 32nd Ave: Add SB Right Turn Lane	$200,000
3H	Merrifield Road Interchange	$7,100,000
3K	17th Ave S Overpass of I-29	$5,800,000
7A	Central Spine Concept	$11,800,000
14A	Implement Gateway Drive Access Management Study Recommendations	$500,000
19A	DeMers / 42nd / BNSF Grade Separation	$16,900,000
TIP Projects (Already Programmed)		
	48th Street Extension, Reconstruction	$8,750,000
	5th Avenue NE / Gateway Drive Intersection	$1,300,000
	Package Total (Not Including TIP Projects)	**$94,810,000**

MEMORANDUM

Bill Troe, AICP
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To: **Grand Forks/East Grand Forks MPO TAC Members**

Date: August 24, 2007

Subject: **Grand Forks / East Grand Forks Street and Highway Plan**
Preliminary Draft 2035 Street and Highway Plan

BACKGROUND

A preliminary recommended Street and Highway Plan project list was developed at the workshop held with MPO TAC members on Wednesday, August 22, 2007. This memo provides a brief summary of the draft recommended plan elements, and compares those elements to the current (2030) Long Range Transportation Plan.

GENERAL PROCESS

The draft 2035 recommended Plan list was developed through the general process of:

1. *Assembling various individual projects into packages that formed a cohesive plan*. The various elements of the list would work together to address as many of the deficiencies and issues as possible, while recognizing that the final list would need to be within the region's future funding capacity.
2. *Assigning each project into likely implementation phases and assigning estimated future costs*. The future cost estimates assume cost inflation in line with each project's implementation period.
3. *Comparing the potential plan costs to future anticipated funding levels*. The project funding capacity was divided by state. It was assumed that Red River bridge funding responsibilities would be divided evenly between the states.
4. *Evaluating the various packages and selecting from them a preliminary recommended improvement plan*. The preliminary recommended improvement plan is discussed throughout the remainder of this memo.

DRAFT 2035 RECOMMENDED PLAN

Through an iterative and interactive process within the workshop, projects were then added or dropped from the draft Plan list according to the funding capacity of each state. The projects included in the draft Plan list, resulting from this process are shown in Figure 1. Each project's likely implementation period future cost, responsibility by state and funding levels by state are shown in Table 1.

COMPARISON TO CURRENT 2030 PLAN

The 2030 Plan and ongoing 2035 Plan update have found many of the same major issues and deficiencies in the region. The draft 2035 Plan includes many projects that were also included in the 2030 Plan recommended list. However, there are some new projects included in the draft 2035 plan, and a few 2030 recommended projects that were not included in the draft 2035 plan list. Selected 2030 Plan projects were revised or eliminated from the preliminary 2035 Plan recommended list due to changing issues / deficiencies or financial constraints. Three of the more significant 2030 Plan recommended projects that are not included in the 2035 draft plan include:

- 6-Lane (plus turn-lane) Widening of Columbia Road (Alt 1F): The 2035 draft Plan list includes a combination of more intersection-focused TSM improvements, rather than adding additional through lanes to the entire corridor.
- 6-Lane (plus turn-lane) Widening of 32nd Avenue (Alt 3G): Similar to Columbia Road, the 2035 draft Plan list includes TSM projects in place of additional through lanes across the entire corridor.
- Reconstruction of 32nd Avenue / I-29 Interchange as a Partial Cloverleaf Interchange (Alt 3E): A widening of the I-29 bridge and reconfiguration of / addition to both northbound and southbound ramps was included in the 2030 Plan project list, to accommodate a 6-lane 32nd Avenue. The alternative included in the draft 2035 Plan list (Alt 3M) would reconfigure only the NB ramps, with no anticipated reconstruction of the southbound ramps or the I-29 bridge, and allow 42nd Street to be realigned to more directly intersect 32nd Avenue.

A complete comparison of 2030 Plan project list and the draft 2035 Plan list is included in Figure 2.

SUMMARY

Please review the draft project list included in this memo. It was the intent of those in attendance at Wednesday's TAC meeting that this project list be the draft 2035 Plan project list, which would be presented to the public and decision-making bodies in Grand Forks / East Grand Forks. If you have any questions or comments on the projects or contents of this memorandum, please contact Bill Troe at (402) 952-2522.

Figure 1. Preliminary 2035 Recommended Projects

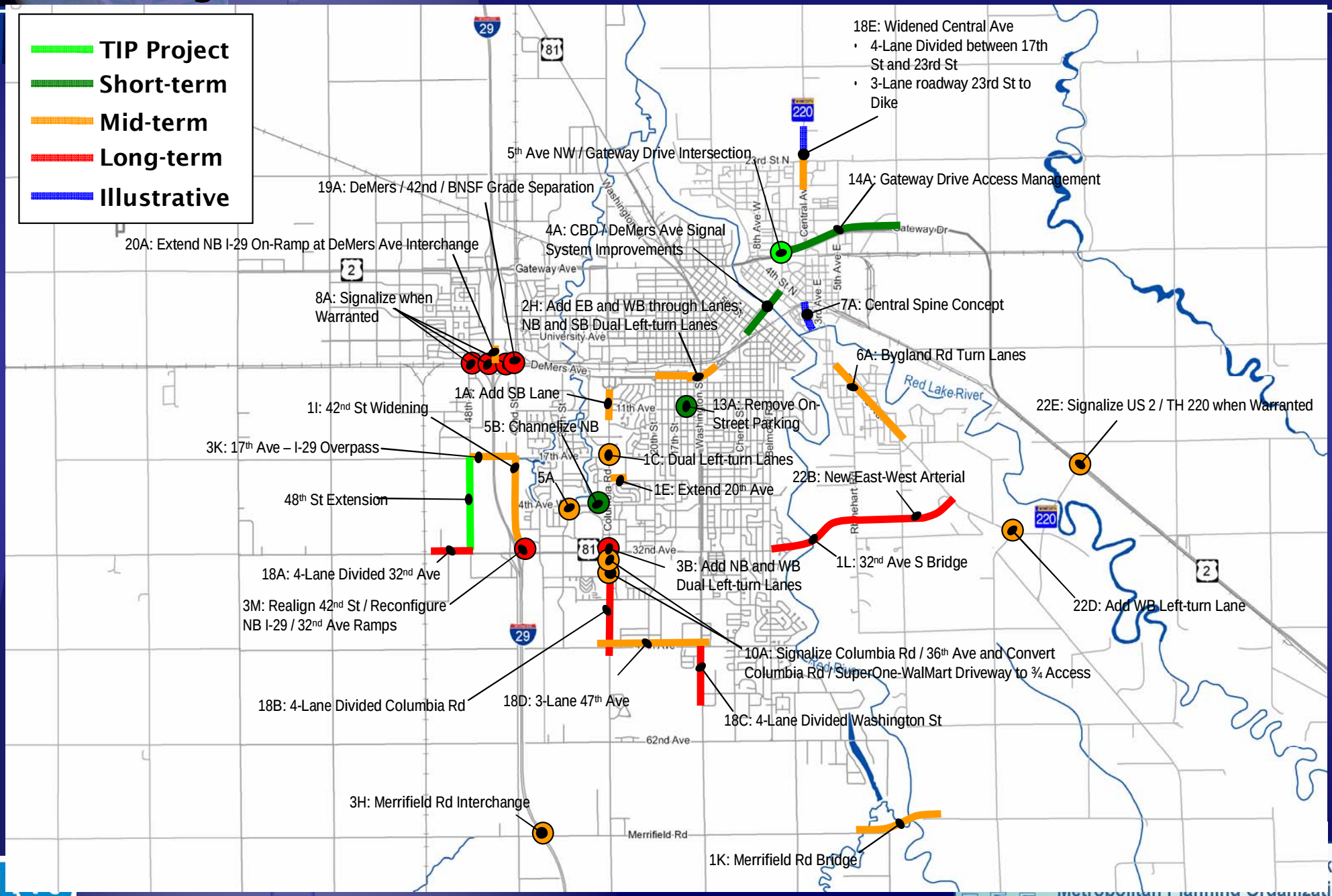


TABLE 1. Draft 2035 Recommended Plan Project Costs and Funding Estimates

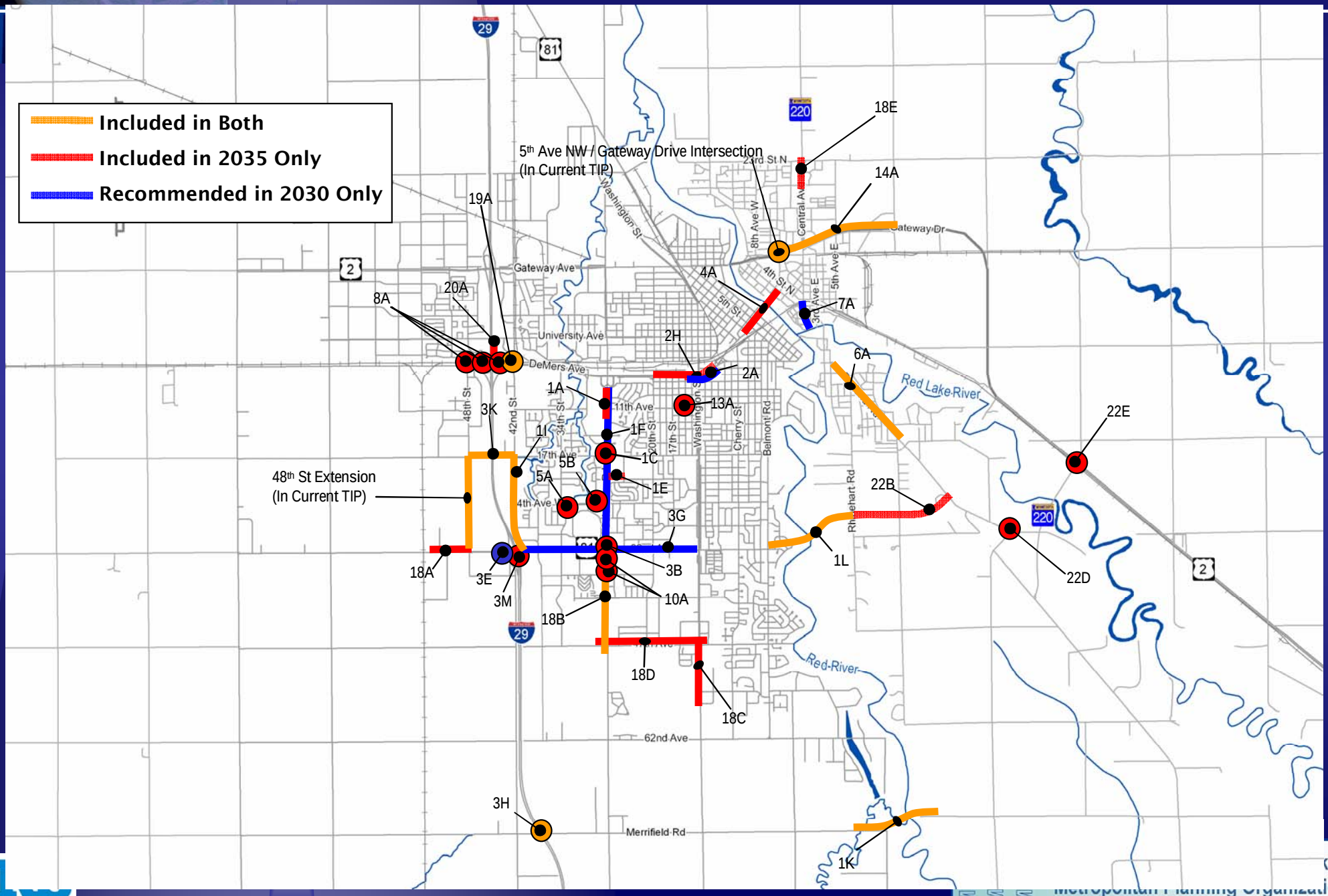
Projects Included		Cost Estimate				Anticipated Implementation Period	Escalated MN Expenditure Period Project Cost	Escalated ND Expenditure Period Project Cost
		2007	Short-Term (0-5 Years)	Mid-Term (6-15 Years)	Long-Term (16-28 Years)			
1I	Widen 42nd Street to 4 Lanes, 17th Ave to 29th Ave	$3,900,000	$4,300,000	$5,900,000	$9,200,000	Mid		$5,900,000
1K	Merrifield Road Red River Crossing	$16,900,000	$18,600,000	$25,500,000	$40,100,000	Mid	$12,750,000	$12,750,000
1L	32nd Ave S Red River Crossing	$20,200,000	$22,300,000	$30,500,000	$47,900,000	Long	$23,950,000	$23,950,000
3H	Merrifield Road Interchange	$7,100,000	$7,800,000	$10,700,000	$16,800,000	Mid		$10,700,000
3K	17th Ave S Overpass of I-29	$5,800,000	$6,400,000	$8,800,000	$13,700,000	Mid		$8,800,000
7A	Central Spine Concept	$11,800,000	$13,000,000	$17,800,000	$28,000,000	Illustrative		Illustrative
18A	4-Lane 32nd Ave: 52nd St to 48th St	$1,100,000	$1,200,000	$1,700,000	$2,600,000	Long		$2,600,000
18B	4-Lane Columbia Rd: 34th Ave to 50th Ave	$5,300,000	$5,800,000	$8,000,000	$12,600,000	Long		$12,600,000
18C	4-Lane Washington St: 48th Ave to 57th Ave	$2,900,000	$3,200,000	$4,400,000	$6,900,000	Long		$6,900,000
18D	3-Lane 47th Ave South, Columbia Rd and Washington St	$2,500,000	$2,800,000	$3,800,000	$5,900,000	Mid		$3,800,000
18E	Widen Central Ave: 17th St to 23rd St	$1,400,000	$1,500,000	$2,100,000	$3,300,000	Mid	$2,100,000	
18E	Widen Central Ave: 23rd St to North Dike	$2,600,000	$2,900,000	$3,900,000	$6,200,000	Illustrative		
1A	Add 3rd SB Columbia Rd lane between DeMers on-ramp and 13th Ave	$300,000	$300,000	$500,000	$700,000	Mid		$500,000
1C	Columbia / 17th: Add dual left-turn lanes for all approaches	$2,500,000	$2,800,000	$3,800,000	$5,900,000	Mid		$3,800,000
1E	20th Ave S Extension to Columbia Road	$400,000	$400,000	$600,000	$900,000	Mid		$600,000
2H	DeMers / Washington: Add Eastbound and Westbound Through Lanes	$8,000,000	$8,800,000	$12,100,000	$19,000,000	Mid		$12,100,000
4A	CBD Traffic Signal System Upgrade	$500,000	$600,000	$800,000	$1,200,000	Short	$300,000	$300,000
3B	32nd / Columbia: NB and WB Dual Lefts	$150,000	$200,000	$200,000	$400,000	Long		$400,000
8A	Signalize 48th / DeMers and I-29 / DeMers Ramps	$700,000	$800,000	$1,100,000	$1,700,000	Long		$1,700,000

TABLE 1. Draft 2035 Recommended Plan Project Costs and Funding Estimates (Continued)

	Projects Included	Cost Estimate 2007	Short-Term (0-5 Years)	Mid-Term (6-15 Years)	Long-Term (16-28 Years)	Anticipated Implementation Period	Escalated MN Expenditure Period Project Cost	Escalated ND Expenditure Period Project Cost
22B	New East-West Arterial Connecting the 32nd Ave Bridge to Bygland Rd	$4,000,000	$4,400,000	$6,000,000	$9,500,000	Long	$9,500,000	
22D	WB Left-Turn Lane at Bygland Rd / CR 58	$100,000	$100,000	$200,000	$200,000	Mid	$200,000	
22E	Signalize TH 220 / US 2	$300,000	$300,000	$500,000	$700,000	Long	$700,000	
3M	Realign 42nd St / Reconfigure NB I-29 / 32nd Ave Ramps	$7,000,000	$7,700,000	$10,600,000	$16,600,000	Mid		$10,600,000
19A	DeMers / 42nd / BNSF Grade Separation	$16,900,000	$18,600,000	$25,500,000	$40,100,000	Long		$40,100,000
5A	Roundabout at 34th St / 24th Ave	$400,000	$400,000	$600,000	$900,000	Mid		$600,000
5B	Channelize 29th St at 24th Ave	$50,000	$100,000	$100,000	$100,000	Short		$100,000
6A	Bygland Road Turn Lanes	$350,000	$400,000	$500,000	$800,000	Mid	$500,000	
10A	Signalize 36th / Columbia and 3/4 access at Wal-Mart SuperOne Driveway	$300,000	$300,000	$500,000	$700,000	Mid		$500,000
13A	11th Ave / 14th St Parking Restrictions	$0	$0	$0	$0	Short		$0
14A	Gateway Drive Access Management	$200,000	$200,000	$300,000	$500,000	Short	$200,000	
20A	Extend NB I-29 DeMers Ramp	$150,000	$200,000	$200,000	$400,000	Mid		$200,000
	48th Street Extension, Reconstruction	$8,750,000	$9,700,000	$13,200,000	$20,700,000	TIP		$8,750,000
	5th Avenue NE / Gateway Drive Intersection	$1,300,000	$1,400,000	$2,000,000	$3,100,000	TIP	$1,300,000	
	North Dakota Costs by Future Period[1]		$9,150,000	$70,850,000	$88,250,000			**$168,250,000**
	Minnesota Costs by Future Period[2]		$1,800,000	$21,550,000	$24,650,000		**$51,500,000**	
	Total Regional Costs by Period		$10,950,000	$92,400,000	$112,900,000			
	Anticipated Federal Funding Level (Including TIP Committments)						**$27,411,000**	**$150,706,000**
	Anticipated County Funding Contributions (For Merrifield Bridge)						**$12,750,000**	**$12,750,000**
	Anticipated East Grand Forks City Funding Contribution (For Improved Byland - 32nd Ave Bridge Arterial)						**$9,500,000**	**$0**
	Total Anticipated Total Funding Level						**$49,661,000**	**$163,456,000**

Notes: 1 - Cost of 48th Street Extension TIP Project included in short-term costs.
2 - Cost of 5th Ave NE / Gateway Drive Intersection TIP Project included in short-term costs.

Figure 2. Project Comparison: 2030 Plan and 2035 Draft Plan



MEMORANDUM

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To: **File**

Date: November 9, 2007

Subject: **Grand Forks / East Grand Forks Street and Highway Plan**
2035 Recommended Project List

BACKGROUND

A preliminary recommended Street and Highway Plan project list was developed at the workshop held with MPO TAC members on Wednesday, August 22, 2007. A summary of the preliminary Plan was documented on August 24. Some comments were received following distribution of the preliminary draft and minor revisions to project timing were made. The purpose of this document is to provide a summary of the recommended projects selected for the Street and Highway Plan.

RECOMMENDED PLAN LIST

The recommended projects are grouped and summarized according to their anticipated implementation period:

- Short-term: 0 to 5 years forward (2007-2012).
- Mid-term: 6-15 years forward (2013-2022).
- Long-term: 16-28 years forward (2023-2035).

The following sections provide summaries of each project by implementation period and estimated current year (2007) construction costs. Each project is presented by its alternative identification name, a number – letter combination that is unique to each project. An illustration and summary of the recommended project list is provided in Figure 1, presented by implementation period.

Short-Term Projects: 2007 through 2012

This section summarizes the projects included on the recommended list for the short-term period. Committed projects that are included in the current MPO TIP were included in the Short-term recommended project list. The TIP projects were consistent with the current Street and Highway Plan goals and objectives, have been studied in previous planning efforts and have identified project funding sources and were therefore incorporated into the LRTP. The short-term projects are:

- *48th Street South Extension (Project TIP1)*: This concept would provide a new connection between DeMers Avenue and 32nd Avenue South, through the industrial park west of I-29. The project would include:
  - Extending South 48th Street as a three-lane facility with right turn lanes between 17th Avenue and 32nd Avenue South. The concept would provide improved access and traffic operations for the corridor as the industrial park growth continues.
  - Reconstruction of 48th Street between DeMers Avenue and 17th Avenue.
  - Improved turn radii at the intersection of 48th Street / DeMers Avenue to improve truck operations.
  - Improve turn radii at the intersection of 32nd Avenue / southbound I-29 ramps to improve truck operations.

  The cost estimate for this project is $8,750,000 in 2007 dollars.
- *5th Avenue NW / Gateway Drive Intersection (Project TIP2)*: To improve system continuity and reduce volumes at the high-crash intersection of Gateway Drive / Central Avenue, the recommended project at 5th Avenue NW / Gateway Drive intersection would:
  - Extend and reconstruct 5th Avenue NW so that it would intersect Gateway Drive.
  - Add a traffic signal to the 5th Avenue NW / Gateway Drive intersection.

  This improved intersection will cost approximately $1,300,000 in 2007 dollars.
- *DeMers Avenue / Downtown Traffic Signal System Improvements (Project 4A)*: To address current peak hour travel delays along DeMers Avenue through downtown Grand Forks and downtown East Grand Forks, improvements to the traffic signal system are recommended based on the *CBD Traffic Circulation Study* (2002). This improvement would interconnect the 5th Street and DeMers Avenue signal systems and remove the signal at 5th Street / Bruce Avenue in Grand Forks, allowing better coordination and traffic flow between signals on both sides of the river.

  This improvement is anticipated to provide acceptable corridor capacity through the planning horizon (LOS C or better). The cost estimate for this project is $500,000 in 2007 dollars.
- *Gateway Drive Access Management Study Recommendations (Project 14A)*: To address access and safety issues along Gateway Drive (US 2), including the high crash incidence at the Gateway Drive / Central Avenue intersection, improvements at

two intersections are proposed:

- 2nd Avenue NE / Gateway Drive Intersection: Construct a ¾-movement access on both north and south approaches, which prohibits left-turns and through movements from the north and south directions. The south approach would provide access to future retail development south of Gateway Drive.
- 15th Avenue NE / Gateway Drive Intersection (substation access): Construct a full-movement intersection and realigned frontage roads to provide greater intersection setback.

The cost estimate for the listed projects is $200,000 in 2007 dollars.

- *Remove On-Street Parking at 11th Avenue South / 14th Street (Project 13A)*: The 11th Avenue South / 14th Street intersection is two-way stop controlled for eastbound and westbound traffic, and experiences a higher crash rate compared to other community intersections. On-street parking, which blocks driver sight lines, is currently allowed on all approaches to the intersection. This concept would restrict on-street parking adjacent to the corners of the intersection, which would improve the sight lines from the intersection.
- *Channelize the Northbound Approach of 24th Avenue / 29th Street (Project 5B)*: The 24th Avenue South / 29th Street intersection is two-way stop controlled for northbound and southbound traffic, and experiences a higher crash rate compared to other community intersections. This project would restrict the northbound through and left-turn movements by reconstructing the northbound leg to only allow right-turns. The cost estimate for this project is approximately $100,000 in both 2007 dollars.

Mid-Term Projects: 2013 through 2022

This section summarizes the projects included on the recommended list for the mid-term. The mid-term projects anticipated for implementation over the period 6 to 15 years from now (2007) are:

- *Widen 42nd Street to 4 Lane Roadway, 17th Avenue South to 29th Avenue South (Project 1I)*: This concept would widen 42nd Street to a 4-lane roadway with a continuous center left-turn lane between 17th Avenue South and 29th Avenue South. This widening would provide a similar cross-section to the current 42nd Street cross-section north of 17th Avenue South. The project would provide sufficient long-term capacity for the corridor. The cost estimate for this project is $3,900,000 in 2007 dollars.
- *Merrifield Road Red River Bridge (Project 1K)*: This project would construct a new bridge across the Red River at Merrifield Road. The Merrifield Road corridor, when combined with a new I-29 interchange, would provide a southern bypass / alternate truck route for the metropolitan area and improve the connectivity between southern Grand Forks and East Grand Forks, both higher growth areas. It is forecasted that the bridge would carry approximately 3,000 vpd by 2035 (assuming the 32nd Avenue South Bridge were also in place), with other parts of the Merrifield Road corridor carrying approximately 8,000 VPD. The cost estimate for this project is $16,900,000 in 2007 dollars.

- *Merrifield Road / I-29 Interchange (Project 3H)*: This concept would provide a Merrifield Road interchange at I-29, where Merrifield Road currently overpasses I-29. The interchange would complement the planned Merrifield Road Bridge of the Red River, providing a southern alternate truck route of the metropolitan area. The cost estimate for this project is $7,100,000 in 2007 dollars.
- *17th Avenue South Overpass of I-29 (Project 3K)*: This improvement would extend 17th Avenue South to connect between 42nd Street and 48th Street, with an overpass of I-29. The concept would provide a more direct corridor into the industrial park west of I-29. The 17th Avenue South overpass would carry approximately 14,000 vehicles per day by 2035, diverting up to 8,000 vehicles per day from 32nd Avenue South at I-29 and 5,000 vehicles per day from DeMers Avenue at I-29. The cost estimate for this project is $5,800,000 in 2007 dollars.
- *DeMers / Washington: Add Eastbound and Westbound Through Lanes (Project 2H)*: To address the peak hour congestion experienced at the intersection, the recommended improvement at this intersection is to:
  - Add an additional eastbound DeMers Avenue through-lane. This would be the third eastbound through lane at the Washington Street / DeMers Avenue intersection and would end as the exit ramp for 4th Avenue South.
  - Add an additional westbound DeMers Avenue through-lane. This would be the third westbound through lane at the Washington Street / DeMers Avenue intersection and would end as a left-turn lane at 20th Street.
  - Add a northbound left-turn lane. This would be the second northbound left-turn lane at the Washington Street / DeMers Avenue intersection.
  - Add a southbound left-turn lane. This would be the second southbound left-turn lane at the Washington Street / DeMers Avenue intersection.

  The concept is anticipated to provide LOS D peak hour operations through the planning horizon. The cost estimate for this project is $8,000,000 in 2007 dollars.
- *Columbia Road Transportation Systems Management Improvements*: To address the current and forecasted future deficiencies identified in the corridor, the following TSM improvements have been recommended:
  - Add a third lane on southbound Columbia Road south of the DeMers Avenue on-ramp ending as a right-turn lane at 13th Avenue South (Project 1A)
  - Improvements at Columbia Road / 17th Avenue South (Project 1C):
    - Add a left-turn lane to all four intersection approaches. After construction, the intersection would have two left-turn lanes on each approach.
    - Add a southbound right-turn lane.
  - Extend 20th Avenue South to Columbia Road (Project 1E).

  It is anticipated that the combination of these projects in tandem with the continued completion / upgrading of 42nd Street and the 32nd Avenue South Red River Bridge would provide acceptable traffic operations in the Columbia Road corridor through the planning horizon. The cost estimate for these three projects is a combined

$3,200,000 in 2007 dollars.

- *Add a Center Left-Turn Lane to Bygland Road (Project 6A)*: The corridor currently has one travel lane in each direction with parking allowed on both sides of the roadway. To improve turning access from / onto the corridor, this project would:
  - Remove on-street parking from both sides of Bygland Road.
  - Restripe the roadway to provide:
    - A continuous center left-turn lane.
    - Five (5) foot wide bike lanes on both sides of the roadway.

  The concept would reduce peak hour delays by separating all left-turning traffic on Bygland Road from through traffic, and provides an improved route for bicycles in the corridor. The cost estimate for this project is $400,000 in 2007 dollars.

- *42nd Street Realignment / I-29 – 32nd Avenue South Interchange Reconfiguration (Project 3M)*: To eliminate the circuitous route along 38th Street – 32nd Avenue to access 42nd Street, this recommended improvement would:
  - Realign 42nd Street to connect with 32nd Avenue at the I-29 northbound off-ramp.
  - Add a traffic signal to the new 42nd Street / 32nd Avenue / northbound I-29 off-ramp intersection.
  - Reconfigure the northbound I-29 on-ramps with a loop ramp in the southeast quadrant to serve eastbound 32nd Avenue traffic and an on-ramp in the northeast quadrant that serves westbound 32nd Avenue traffic. This reconfiguration eliminates the need for a second signalized intersection adjacent to the new 42nd Street / 32nd Avenue / northbound I-29 off-ramp intersection.

  The cost estimate for this project is $7,000,000 in 2007 dollars.

- *Southbound Right-Turn Lane at 34th Street / 32nd Avenue South intersection (Project 3O)*: The recommended improvement would:
  - Provide a southbound right-turn lane on 34th Street and the 32nd Avenue South intersection.
  - Adjust the traffic signal to provide "protected-permissive" left-turn operations to northbound and southbound traffic, as currently provided for eastbound and westbound traffic.

  The recommended improvement should provide acceptable operations through 2035. The cost estimate for this project is $100,000 in 2007 dollars.

- *Roundabout at 34th Street / 24th Avenue South (Project 5A)*: The intersection is currently a 1-way stop-controlled intersection for south- / southeast-bound 34th Street traffic. The recommended improvement at the intersection is reconstructing the intersection as a roundabout. The roundabout would provide acceptable operations and access through 2035. This recommendation is contingent upon the findings of the Grand Forks' collector-to-collector intersection study. The cost estimate for this project is $400,000 in 2007 dollars.

- *Improvements at Columbia Rd / 36th Ave S and Columbia Rd / Super One Foods – Wal-Mart Driveway (Project 10A)*: Both intersections are currently two-way stop controlled for eastbound – westbound traffic. The project would improve accessibility and safety at these two intersections by:
  - Adding a traffic signal at Columbia Road / 36th Avenue South. This provides Columbia Road with ¼ mile spacing between traffic signals at 32nd Avenue South and 36th Avenue, which is consistent with the spacing north of 32nd Avenue.
  - Converting Columbia Road / Super One Foods Driveway – Wal-Mart to ¾ access which allows for all movements with the exception of left-turns from the east-west driveways.

  A signal warrant study should be conducted before a signal is installed at this location. The cost estimate for this project is $300,000 in 2007 dollars.
- *Extend Northbound I-29 DeMers Avenue Ramp (Project 20A)*: There is currently a relatively short acceleration lane for northbound I-29 traffic from the DeMers Avenue ramp, which must accelerate up a hill as it merges. The improvement would include a minor widening of approximately 400 to 600 feet of I-29 (north of the DeMers Avenue bridge) to accommodate the longer acceleration lane. The cost estimate for this project is $150,000 in 2007 dollars.

  Westbound Left-Turn Lane at Bygland Rd / CR 58 (Project 22D): The project would add a westbound turn lane at the intersection, to accommodate a forecasted increase in traffic turning onto County Route 58 to access the proposed Merrifield Road Bridge. The cost estimate for this project is $100,000 in 2007 dollars.
- *Rural-to-Urban Transition Improvements (Mid-Term)*: Two rural-to-urban roadway transition projects are recommended in the mid-term:
  - 3-Lane 47th Ave South: Columbia Rd and Washington St (Project 18D): Reconstruct and add a continuous left-turn lane to provide better access to developed parcels.
  - Widen Central Ave: 17th St to 23rd St (Project 18E): Reconstruct Central Avenue as a four-lane roadway between 17th Street North and 23rd Street North.

  The cost estimate for these two projects is a combined $3,900,000 in 2007 dollars.

Long-Term Projects: 2023 through 2035

This section summarizes the projects included on the recommended list for the long-term. The long-term projects anticipated for implementation over the period 16 to 28 years from now (2007) are:

- *32nd Avenue South Red River Bridge (Project 1L)*: The 32nd Avenue South bridge would provide a more direct connection between relatively high-growth areas of southern Grand Forks and southern East Grand Forks. In 2035 the 32nd Avenue South Bridge is forecasted to carry approximately 9,000 VPD. The cost estimate for this project is $20,200,000 in 2007 dollars.

- *New East-West Arterial Connecting the 32nd Avenue Bridge to Bygland Road (Project 22B)*: This project would develop a new two-lane arterial roadway along an east-west alignment approximately 1/3 mile north of Harley Drive. As adjacent land develops from current agriculture uses to residential and commercial uses over the planning horizon, the corridor should be platted and constructed. The cost estimate for this project is $4,000,000 in 2007 dollars.
- *Signalize the Intersection of TH 220 / US 2 (Project 22E)*: Traffic volumes along Trunk Highway 220 (TH 220) / Mallory Bridge are forecasted to increase from a 2,100 VPD without the 32nd Avenue and Merrifield Road bridges to 6,100 VPD with the two new river crossings in place. This project would add a traffic signal to the TH 220 / US 2 intersection. For safety, three different elements should be included / maintained with this project:
  - Flashing Advanced Warning Signs.
  - The stopbar for northeast-bound TH 220 traffic should be maintained in its current location, behind the BNSF rail line adjacent to US 2.
  - Railroad gates should be installed at the current rail signal.

  The cost estimate for this project is $300,000 in 2007 dollars.
- *32nd Avenue South / Columbia Road: Add Northbound and Westbound Dual Left-Turn Lanes (Project 3B)*: The intersection currently operates at LOS C during the PM peak hour, with 2035 operations at LOS E. The project would:
  - Add a northbound left-turn lane. This would be the second northbound left-turn lane at the 32nd / Columbia intersection.
  - Add a westbound left-turn lane. This would be the second westbound left-turn lane at the 32nd / Columbia intersection.

  The project would provide acceptable traffic operations through 2035. The cost estimate for this project is $150,000 in 2007 dollars.
- *Signalize 48th Street / DeMers Avenue and I-29 / DeMers Avenue Ramps (Project 8A)*: It is anticipated that left-turning traffic from the I-29 off-ramps will encounter more significant delays. When warranted, this project would add traffic signals at:
  - 48th Street / DeMers Avenue
  - Northbound I-29 Ramps / DeMers Avenue
  - Southbound I-29 Ramps / DeMers Avenue

  The cost estimate for this project is $700,000 in 2007 dollars.
- *DeMers Avenue / 42nd Street / BNSF Grade Separation (Project 19A)*: The BNSF railroad tracks at 42nd Street carry approximately 9 trains a day, which leads to driver delay and congestion along 42nd Street. The project would:
  - Depress 42nd Street under the BNSF rail line and DeMers Avenue to provide a grade-separated crossing of the BNSF railroad tracks that run less than 100 feet north of DeMers Avenue.
  - Provide a connecting roadway between 42nd Street and DeMers Avenue to maintain access between the two roadways.

The cost estimate for this project is $16,900,000 in 2007 dollars.

- *Rural-to-Urban Transition Improvements (Long-Term)*: Three rural-to-urban roadway transition projects are recommended in the long-term:
  - 4-Lane 32nd Ave: 52nd St to 48th St (Project 18A): Reconstruct 32nd Avenue South as a 4-lane divided roadway on the west approach to the 32nd Avenue / 48th Street intersection.
  - 4-Lane Columbia Rd: 36h Ave to 50th Ave (Project 18B): Reconstruct Columbia Road to a 4-lane divided roadway between 36th Avenue and 50th Avenue South.
  - 4-Lane Washington St: 48th Ave to 57th Ave (Project 18C): Reconstruct Washington Street to a 4-lane divided roadway between 48th Avenue and 57th Avenue South.

  The cost estimate for these three projects is a combined $9,300,000 in 2007 dollars.

Comparison of Plan Costs and Funding Capacity

This section documents the individual and cumulative project costs of the recommended plan in terms of anticipated year of expenditure. It also documents the anticipated funding capacity of the region through 2035. As shown in previous documents to the TAC, it is anticipated that the Grand Forks – East Grand Forks MPO will have the following total funding levels for street and highway expansion projects for the region through 2035:

- *North Dakota funding*: $150,706,000
- *Minnesota funding*: $27,411,000, including the additional ATP allocation this total is anticipated to be $28,741,000

A summary of the cost estimates in 2007 dollars and by implementation period is shown in Table 1. The table also includes summaries of anticipated funding levels.

TABLE 1. RECOMMENDED PROJECT COSTS BY EXPENDITURE PERIOD

	Projects Included	Cost Estimate				Project Cost by Expenditure Period	
		2007	Short-Term (0-5 Years)	Mid-Term (6-15 Years)	Long-Term (16-28 Years)	Minnesota	North Dakota
Short-Term Projects							
TIP1	48th Street Extension, Reconstruction	$8,750,000	$8,750,000				$8,750,000
TIP2	5th Avenue NE / Gateway Drive Intersection	$1,300,000	$1,300,000			$1,300,000	
4A	CBD Traffic Signal System Upgrade	$500,000	$600,000			$300,000	$300,000
5B	Channelize 29th St at 24th Ave	$50,000	$100,000				$100,000
13A	11th Ave / 14th St Parking Restrictions	$0	$0				$0
14A	Gateway Drive Access Management	$200,000	$200,000			$200,000	
Mid-Term Projects							
1I	Widen 42nd Street to 4 Lanes, 17th Ave to 29th Ave	$3,900,000		$5,900,000			$5,900,000
1K	Merrifield Road Red River Crossing	$16,900,000		$25,500,000		$12,750,000	$12,750,000
3H	Merrifield Road Interchange	$7,100,000		$10,700,000			$10,700,000
3K	17th Ave S Overpass of I-29	$5,800,000		$8,800,000			$8,800,000
18 D	3-Lane 47th Ave South, Columbia Rd and Washington St	$2,500,000		$3,800,000			$3,800,000
18E	Widen Central Ave: 17th St to 23rd St	$1,400,000		$2,100,000		$2,100,000	

TABLE 1. RECOMMENDED PROJECT COSTS BY EXPENDITURE PERIOD (CONTINUED)

Projects Included		Cost Estimate				Project Cost by Expenditure Period	
		2007	Short-Term (0-5 Years)	Mid-Term (6-15 Years)	Long-Term (16-28 Years)	Minnesota	North Dakota
Mid-Term Projects (continued)							
1A	Add 3rd SB Columbia Rd lane between DeMers on-ramp and 13th Ave	$300,000		$500,000			$500,000
1C	Columbia / 17th: Add dual left-turn lanes for all approaches	$2,500,000		$3,800,000			$3,800,000
1E	20th Ave S Extension to Columbia Road	$400,000		$600,000			$600,000
2H	DeMers / Washington: Add Eastbound and Westbound Through Lanes	$8,000,000		$12,100,000			$12,100,000
22D	WB Left-Turn Lane at Bygland Rd / CR 58	$100,000		$200,000		$200,000	
3M	Realign 42nd St / Reconfigure NB I-29 / 32nd Ave Ramps	$7,000,000		$10,600,000			$10,600,000
3O	SB Right-Turn Lane at 34th Street / 32nd Ave intersection	$100,000		$200,000			$200,000
5A	Roundabout at 34th St / 24th Ave	$400,000		$600,000			$600,000
6A	Bygland Road Turn Lanes	$350,000		$500,000		$500,000	
10A	Signalize 36th / Columbia and 3/4 access at Wal-Mart SuperOne Driveway	$300,000		$500,000			$500,000
20A	Extend NB I-29 DeMers Ramp	$150,000		$200,000			$200,000

TABLE 1. RECOMMENDED PROJECT COSTS BY EXPENDITURE PERIOD (CONTINUED)

Projects Included		Cost Estimate				Project Cost by Expenditure Period	
		2007	Short-Term (0-5 Years)	Mid-Term (6-15 Years)	Long-Term (16-28 Years)	Minnesota	North Dakota
Long-Term Projects							
1L	32nd Ave S Red River Crossing	$20,200,000			$47,900,000	$23,950,000	$23,950,000
18A	4-Lane 32nd Ave: 52nd St to 48th St	$1,100,000			$2,600,000		$2,600,000
18B	4-Lane Columbia Rd: 34th Ave to 50th Ave	$5,300,000			$12,600,000		$12,600,000
18C	4-Lane Washington St: 48th Ave to 57th Ave	$2,900,000			$6,900,000		$6,900,000
3B	32nd / Columbia: NB and WB Dual Lefts	$150,000			$400,000		$400,000
8A	Signalize 48th / DeMers and I-29 / DeMers Ramps	$700,000			$1,700,000		$1,700,000
22B	New East-West Arterial Connecting the 32nd Ave Bridge to Bygland Rd	$4,000,000			$9,500,000	$9,500,000	
22E	Signalize TH 220 / US 2	$300,000			$700,000	$700,000	
19A	DeMers / 42nd / BNSF Grade Separation	$16,900,000			$40,100,000		$40,100,000
	North Dakota Costs by Expenditure Period		$9,150,000	$71,050,000	$88,250,000		$168,450,000
	Minnesota Costs by Expenditure Period		$1,800,000	$15,550,000	$34,150,000	$51,500,000	
	Total Regional Costs by Period		$10,950,000	$86,600,000	$122,400,000		
Anticipated MPO Funding Levels						$27,411,000	$150,706,000
Anticipated ATP Expansion Fund Increase						$1,330,000	$0
Anticipated County Funding Contributions (For Merrifield Bridge)						$12,750,000	$12,750,000
Anticipated East Grand Forks City Funding Contribution (For Bygland - 32nd Ave Bridge Arterial)						$9,500,000	$0
Total Anticipated Total Funding Level						$50,991,000	$163,456,000

THE FORKS
Long Range Transportation Plan

2035 Recommended Street and Highway Plan

Project Listing

TIP Projects
TIP 1 48th Street Extension
TIP 2 5th Avenue NE / Gateway Drive Intersection

Short-term Projects
4A CBD Traffic Signal System Upgrade
5B Channelize Northbound 29th St at 24th Ave
13A 11th Ave / 14th St Parking Restrictions
14A Gateway Drive Access Management Recommendations

Mid-term Projects
1A Add 3rd SB Columbia Rd lane between DeMers on-ramp and 13th Ave S
1C Columbia / 17th Ave S: Add dual left-turn lanes for all approaches
1E 20th Ave S Extension to Columbia Road
1I Widen 42nd Street to 4 Lanes: 17th Ave to 29th Ave
1K Merrifield Road Red River Crossing
2H DeMers / Washington: Add Eastbound and Westbound Through Lanes
3H Merrifield Road Interchange
3K 17th Ave S Overpass of I-29
3M Realign 42nd St / Reconfigure NB I-29 / 32nd Ave Ramps
30 34th St / 32nd Ave: Add Southbound Right-turn Lane
5A Roundabout at 34th St / 24th Ave
6A Bygland Road: Restripe as 3-Lane Roadway
10A Signalize 36th / Columbia and Provide 3/4 Access at Wal-Mart SuperOne Driveway
18D 3-Lane 47th Ave South: Columbia Rd to Washington St
18E Widen Central Ave: 17th St to 23rd St
20A Extend NB I-29 DeMers On-Ramp
22D WB Left-Turn Lane at Bygland Rd / CR 58

Long-term Projects
1L 32nd Ave S Red River Crossing
3B 32nd / Columbia: NB and WB Dual Lefts
8A Signalize 48th / DeMers and I-29 / DeMers Ramps
18A 4-Lane 32nd Ave: 52nd St to 48th St
18B 4-Lane Columbia Rd: 34th Ave to 50th Ave
18C 4-Lane Washington St: 48th Ave to 57th Ave
19A DeMers / 42nd / BNSF Grade Separation
22B New East-West Arterial Connecting the 32nd Ave Bridge to Bygland Rd
22E Signalize TH 220 / US 2

Illustrative Projects
1G 47th Ave S: Preserve Corridor for Future Interchange
7A Central Spine Concept
17E New North-South Road Connecting Crystal Sugar Plant to 10th St NE
18E Widen Central Ave: 23rd St to North Dike
23A Continue to Evaluate Long-Term Need for North Bypass / Truck Relief Route

Implementation Period
- TIP Project
- Short-term
- Mid-term
- Long-term
- Illustrative

Figure 1

URS

APPENDIX D:

MAY 2007 PRESENTATION TO MPO TAC: FIRST LEVEL ALTERNATIVES SCREENING

Agenda

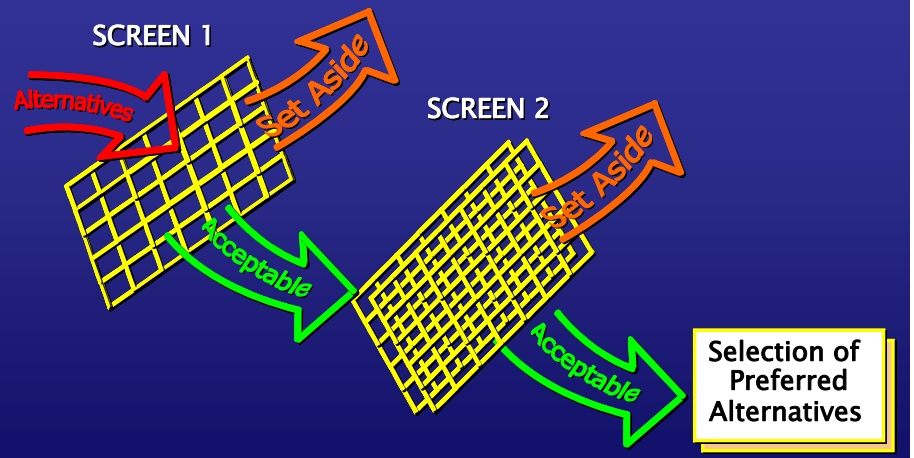
1. **Overview of the Meeting**
   - Purpose
   - Products
   - Housekeeping
2. **Introductions**
3. **2000 to 2035 the Changes**
   - Development
   - Congestion
4. **Alternatives Review**
5. **Action Items (List Developed Throughout the Meeting)**

Overview of the Meeting

- **Workshop Purpose:**
  - Complete the Initial Screening of Roadway Improvement Alternatives (Not the Final Plan)
  - Have Completed Initial "Technical" Assessment
  - Local Input
    - Consistency with Policies and Values
    - Significance of Benefits Versus Impacts

Overview of the Meeting

- **Anticipated Products:**
  - Three Lists:
    - Maintained
    - Discarded
    - Maintained as Complementary to an Other Improvement
  - Defensible Reasons for Eliminating or Maintaining
  - Input from Range of Sources/Points of View
  - Direction for Next Step
    - Packages
    - Funding/Costs

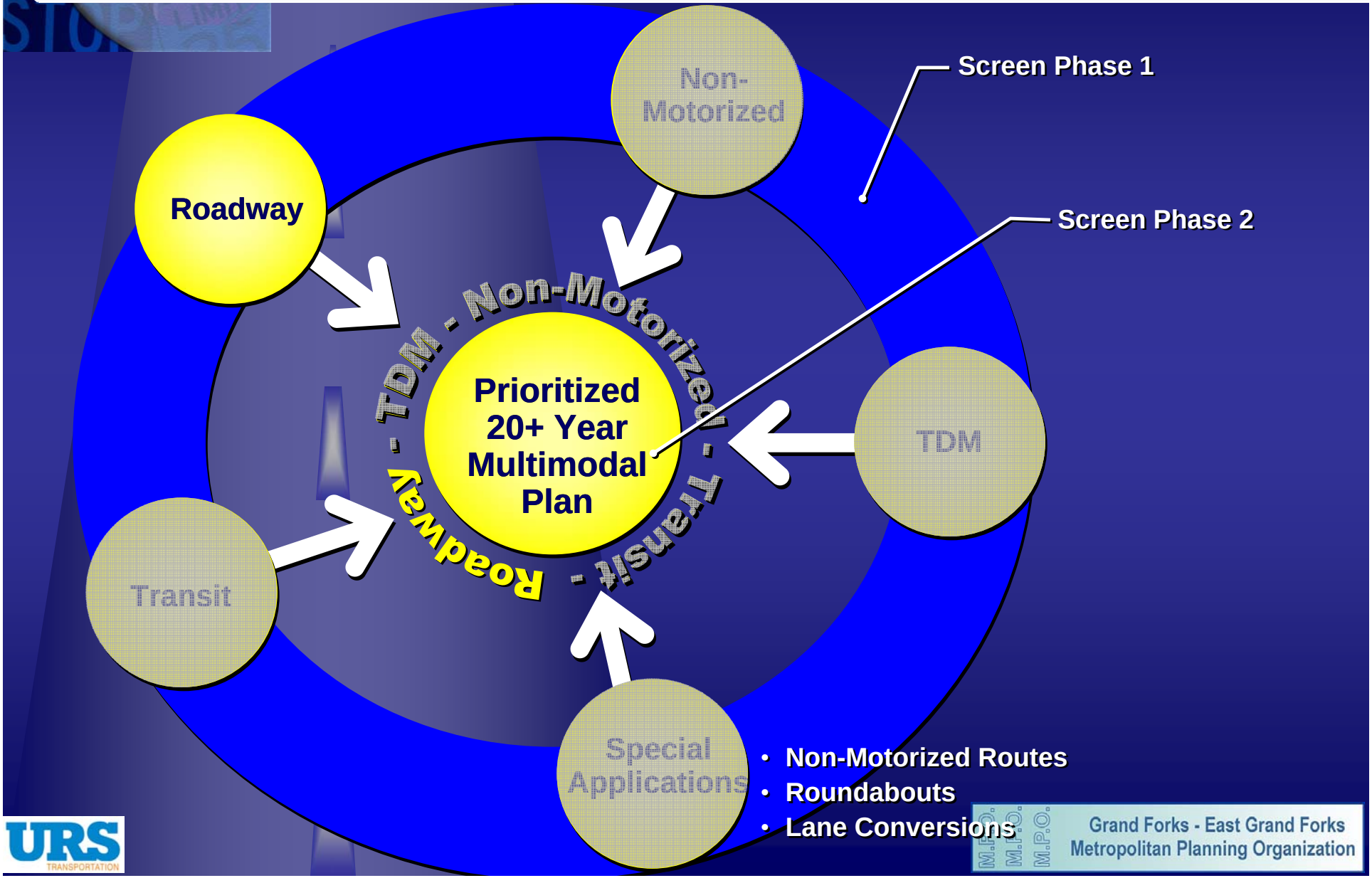


Today's Products Will be Presented to the Public

Overview of the Meeting

- **Housekeeping:**
  - Will be Presenting Information by Issue / Location
  - We are Here to Provide Information and to Learn
  - Likely Need to Limit Discussion Time on Any One Subject (We Can Always Come Back to it Later)

Screening Process



- Non-Motorized Routes
- Roundabouts
- Lane Conversions

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Process Summary

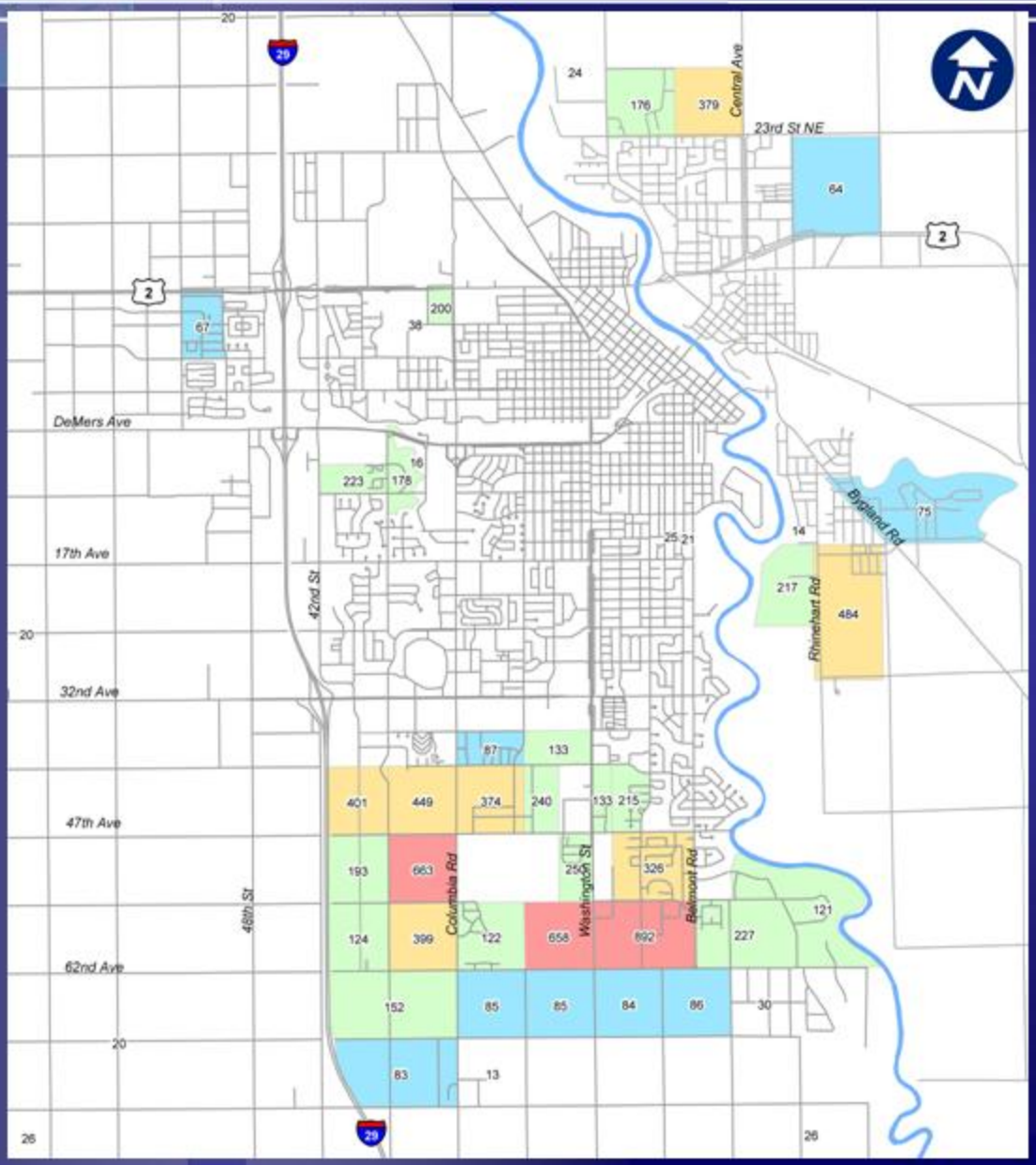
- **Focus Areas Developed From:**
  - Issues Workshops
  - Input from Staff
  - URS System Assessment
- **Combination of Quantitative and Qualitative**
  - Based on Tools/Data Availability

What Is Anticipated For the Future?

2005 to 2035 Changes

- **Change in Travel Tied to:**
  - Number of New Dwellings
  - Number of New Employees
  - Location of Growth
- **Anticipate:**
  - 9,300 New Dwelling Units Through 2035
  - 14,200 New Employees Through 2035:
- **Location In Region**

Distribution – New Dwelling Units



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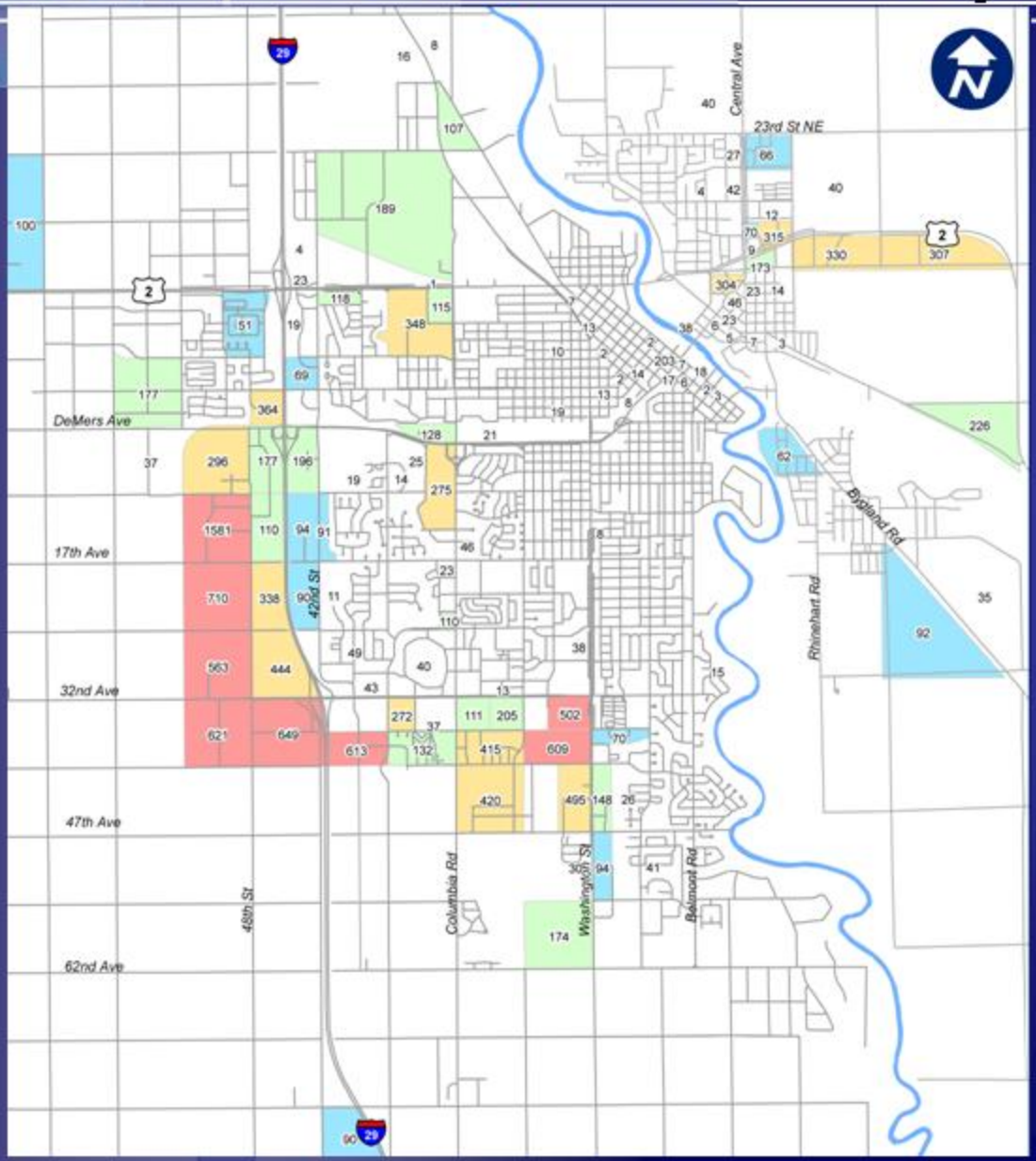
Distribution – New Employment



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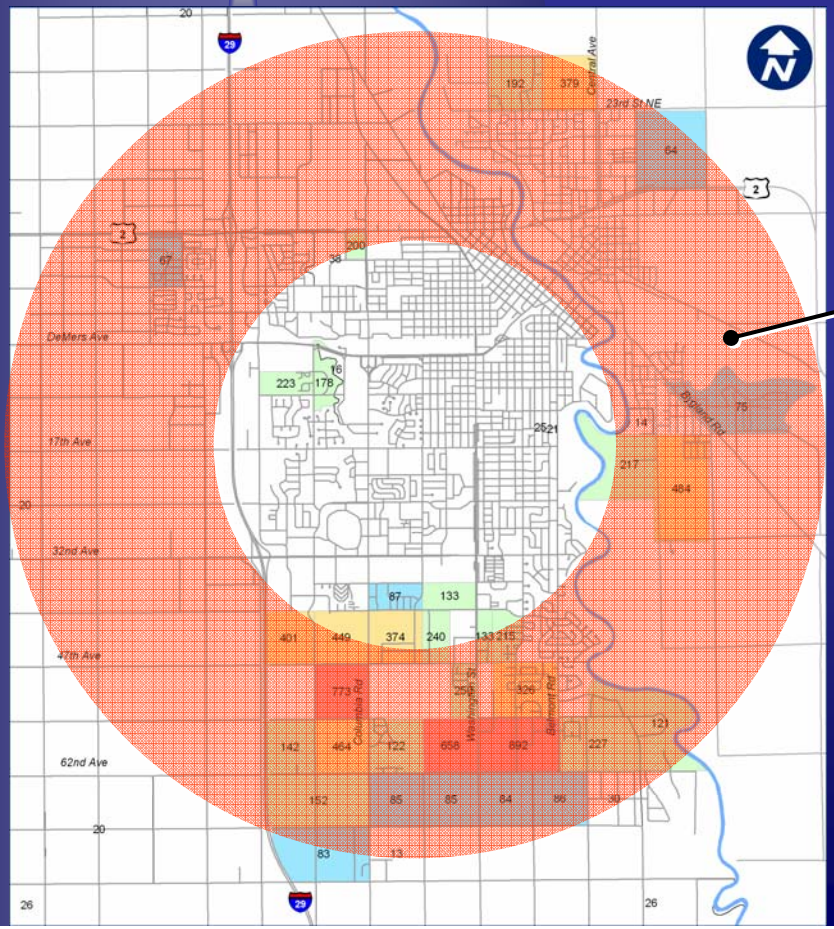
Change in Travel

- Growth in Regional Trips: +34%
- Growth in Regional VMT: +57%



Longer Average Trip Lengths – New Trips are Beyond Current Development Area

To Operations Map

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Alternatives Analysis - Intro

- Initial Screening – Individual Modes
- Individual Alternatives (Do Not See Cumulative Effects)
- Consider Non-Roadway Modes when Evaluating the Roadway Alternatives
- Cannot Focus on One/Few Measure(s)

THE FORKS
Long Range Transportation Plan

Roadway Improvement Alternatives

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Roadway Improvement Analysis Overview

- **Focus is On:**
  - Reducing congestion
  - Improving safety
  - Improving efficiency
- **Areas to Address:**
  - Providing Adequate "Baseline" Access and Safety
  - Obtaining Greatest Return on Investment

To Operations Map

Intensity

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Roadway Improvement Categories

- **Expansion:**
  - Transportation systems management (TSM)
  - Through lanes
- **New Corridors (Divert Traffic from Deficient Route)**
- **Operations Management:**
  - One-way pairs
  - Intersection control
  - Technology improvements
- **Rethink Development Patterns???????**

Roadway Improvement Assessment

The Do-Nothing Is ALWAYS an Option

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Roadway Assessment MOEs

- Impacts to Adjacent Areas
- Impacts on VMT
- Impacts on VHT
- Safety
- Cost
- System Continuity
- Reduction in Congested Miles

Roadway Improvement Analysis Overview

- **Focus is On:**
  - Reducing congestion
  - Improving safety
  - Improving efficiency
- **Areas to Address:**
  - Obtaining Greatest Return on Investment
  - Providing Adequate "Baseline" Access and Safety

To V/C Maps

To Intensity Maps

To Alts Maps

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Columbia Road Congestion

Alternatives

- **TSM:**
  - **Extend SB DeMers Ramp to 11th Ave South (Acceleration Lane Issue)**
  - **Add Turn Lanes at:**
    - 13th Ave S
    - 17th Ave S
    - 24th Ave S
    - 32nd Ave S
  - Extend 20th Ave S to Columbia Rd from East
- **Expansion:**
  - Widen to 7-Lanes
  - Create 47th Ave S/I-29 Interchange
  - Widen 42nd Street to 4-lanes south of 17th Ave
  - Widen Washington Street to 7-lanes
- **Adjust Development Concept**

THE FORKS Long Range Transportation Plan

Roadway Alternatives Assessment

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
Congestion Along Columbia Road Corridor					
1. Transportation Systems Management:					
- Extend current southbound right-turn lane at 11th to connect to DeMers ramp.	* Minor right-of-way (R.O.W.) acquisition would be required west of Columbia Rd to maintain sidewalk set-back.	* Provides greater distance for traffic merging from DeMers to SB Columbia.	* No significant impacts anticipated.	Low	
- Add turn lanes at signalized intersections along Columbia Road between 32nd Avenue and DeMers Ramps:					
* 13th Ave S / Columbia Rd - Add Southbound dual left-turn lanes.	* Minor R.O.W. acquisition would be required to maintain sidewalk set-back.	* Currently 270 southbound left turns in PM peak; projected to be 300 in 2035. Concept provides LOS "C" in 2035 PM peak, compared to LOS "E" in 2035 No Build. * Widen and restripe 13th Avenue to a 4-lane cross-section for approximately 1/4 mile on east of intersection to accommodate the southbound left-turns.	* Potential 4f issue - minor widening of EB 13th St into linear park west of 23rd St.	Low	
* 17th Ave S / Columbia Rd - Add dual left-turn lanes for all approaches.	* Driveways for offices on NW and NE corners converted to right-in-right-out only. Minor R.O.W. acquisition would be required along 17th Ave S to maintain sidewalk set-back. * Wider roadway cross sections increase pedestrian crossing times and concerns for pedestrian safety.	* Widen and restripe 17th Avenue to a 5-lane cross-section for approximately 1/4 mile on each side of intersection to accommodate the northbound and southbound left-turns. * Intersection currently operates at LOS "E" during PM peak. Concept provides LOS "D" in 2035 PM peak, compared to LOS "F" in 2035 No Build .	* Potential 4f issue if ROW is acquired from Apollo Park or Kraft Field in the SE corner of this intersection.	Low to Moderate	
* 24th Ave / Columbia - Add dual left-turn lanes and one right-turn lane for SB approach. Restripe east / west legs to provide 2 through lanes.	* Minor R.O.W. acquisition would be required along 24th Ave east of Columbia Rd in order to maintain sidewalk set-back. * Acquisition of R.O.W. for the SB right-turn lane would impact operations of a business drive-thru located in the NW corner of this intersection. * Wider roadway cross sections increase pedestrian crossing times and concerns for pedestrian safety.	* Widen and restripe 24th Avenue to a 5-lane cross-section for approximately 1/4 mile on each side of intersection to accommodate the southbound left-turns. * Concept would provide LOS "C" in 2035 PM peak, compared to LOS "E" in 2035 No Build . * Convert WB approach to 1 left-turn lane, 2 through lanes.	* No significant impacts anticipated.	Low to Moderate	
- Extend 20th Ave South between Columbia Rd and 25th Street.	* Decreases traffic adjacent to Park and Red River High School at 17th Ave / 25th Street. * Increases traffic along 20th Ave S east of Columbia, currently classified as local street. * Past concerns about baseballs from fields hitting cars on 20th Ave S.	* Provides diversion of neighborhood-generated traffic from 17th Ave, approximately 1,000 vehicles per day (VPD). On its own, does not significantly improve operations at 17th Ave - Columbia Rd. * Maintaining 20th Ave S / Columbia as two-way stop controlled intersection, should minimize concerns about cut-through traffic along 20th Ave.	* No significant impacts anticipated.	Low	

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Roadway Alternatives Assessment

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
2. Expansion / Corridor Widening: - Widen Columbia Road to a 7-lane cross section between Demers Ave and 32nd Ave (2030 LRTP Recommendation)	* R.O.W. acquisition would be required along Columbia Rd to maintain sidewalk set-back. R.O.W. impacts will be greater if existing right-turn lanes are maintained with the wider cross section. * Wider roadway cross sections increase pedestrian crossing times and concerns for pedestrian safety.	* Concept provides additional capacity for north/south through movements. This design does not necessarily help heavy left-turn movements at 13th, 17th and 24th Ave. * The wider cross section would require all Columbia Rd left-turn movements to be changed to protected only operations. This could have a negative impact for traffic operations, particularly for the left-turn movements. * On it's own, concept provides LOS "E" at Columbia Rd - 17th Ave due to high delays for left-turning traffic. * Concept attracts 3,000 to 8,000 additional vpd in 2035 to Columbia Rd compared to base scenario.	* Increased traffic volumes closer to homes could result in noise impacts. * Dependent on sidewalk setbacks the ROW impact would be 5-12' for each parcel along this corridor. Parking lot impacts are anticipated for some parcels. * For those intersections where dual left-turn lanes are still required to accommodate the Columbia Rd left-turn volumes the ROW impacts will result in acquisition of parcels.	High	
- Create 47th Ave S Interchange	* RV Park / Campground adjacent to 47th Ave / I-29 would be acquired.	* Provides direct I-29 access to planned residential / commercial growth in south Grand Forks. * Reduces 2035 traffic volumes by 5,000 to 7,000 vpd along Columbia Road north of 32nd Ave. * Reduces 2035 traffic volumes by 2,000 to 9,000 vpd along 32nd Ave west of Columbia Rd.	* Requires Access Modification Request to FHWA (additional study).	Moderate to High	
- Widen 42nd St to a four-lane cross-section between 17th Ave and 32nd Ave (2030 LRTP Recommendation)	* No significant social/R.O.W. impacts anticipated.	* Would divert approximately #,000 vpd from Columbia Road by 2035 (awaiting ATAC model run).	* No significant impacts anticipated.	Moderate	
- Widen Washington St to a six-lane cross-section between DeMers and 32nd Ave	* Significant R.O.W. acquisitions between DeMers and 14th Ave S, as R.O.W. currently ranges from 80 to 88 feet wide along this segment.	* South of Hammerling Ave, shortened distance between Washington and frontage roads would provide less vehicle storage. * Consolidation of access points north of Hammerling may be desirable for safety reasons. * Significant business impacts in corridor likely are a fatal flaw.	* Significant business losses / impacts.	High	
3. Land Development Concept Modification: - Reduce allowable future levels of development along the South Columbia Road travelshed; shift development to travelsheds with more reserve capacity.	* Shifting currently-projected development levels is inconsistent with current Grand Forks Land Use Plan. * Would increase growth in other sectors of the city, likely leading to similar levels of congestion in different corridors.	* Decreased traffic growth / congestion in Columbia Rd corridor would be shifted into other corridors.		N/A	

Washington-DeMers Congestion

Alternatives

- **TSM:**
  - Add through lane(s)
- **Convert to Interchange:**
  - Single-Point Urban Interchange (SPUI)
  - Split diamond interchange with 4th Ave S Interchange
- **Improve Adjacent Corridors:**
  - University Avenue / 2nd Ave N as 1-way pair
  - 20th Street – add turn lanes / signalization

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Washington-DeMers Congestion – Parallel Corridors

Metropolitan Planning Organization

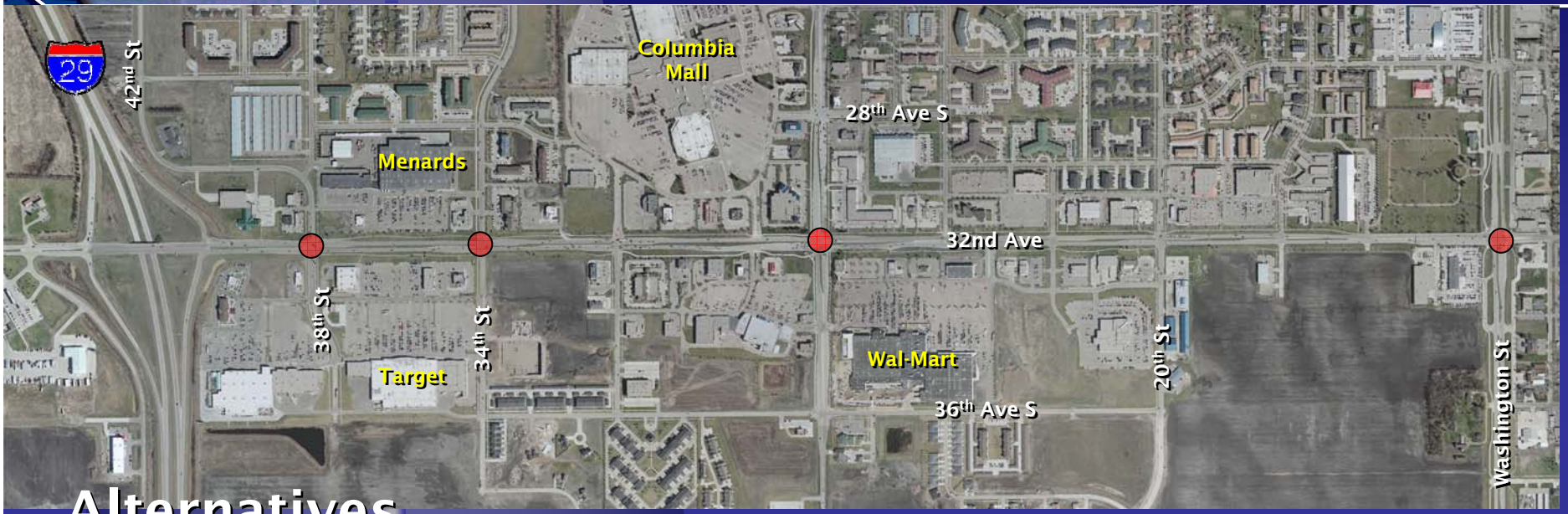
Roadway Alternatives Assessment

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
Congestion at DeMers Avenue - Washington Street Intersection					
1. Transportation Systems Management: - Add eastbound through lane (2030 LRTP Recommendation)	* Current sidewalk and trail set-back, this concept would require additional (approx. 16') strip of R.O.W. acquisition. * Concept impacts operations at Fire Station on Northeast corner; reducing separation between the garage bays and street to approximately 40 feet. Firetrucks parked on driveway would block the trail. * Wider roadway cross sections increase pedestrian crossing times and concerns for pedestrian safety.	* Peak hour traffic is higher today (2006) than volumes observed in 2002 for last plan update. * Intersection currently operates at LOS "F" during PM peak hour. Improvement provides additional eastbound capacity, requiring less green-time for eastbound movement, allowing more westbound left-turn green time. * Based on latest PM peak hour forecasts, it is anticipated that this improvement would reduce delays, but would still be a LOS "F" by 2035.	* Minor acquisition of railroad property would be required. Property is adjacent to BNSF yard, roundhouse and turntable - possible contamination (fuel / oil) on property? * No business acquisition would be required. Current access points could be maintained.	Moderate	
- Add 3rd lane for both the eastbound and westbound approaches	* Would impact operations at Fire Station on Northeast corner; reducing separation between the garage bays and street to approximately 40 feet. * Wider roadway cross sections increase pedestrian crossing times and concerns for pedestrian safety.	* Intersection currently operates at LOS "F" during PM peak hour. Improvement provides additional eastbound / westbound capacity, requiring less green-time for eastbound movement, allowing more westbound left-turn green time. * On its own, this improvement would reduce delays, but would still be a LOS "F" by 2035.	* Acquisition of railroad property would be required. Property is adjacent to BNSF yard, roundhouse and turntable - possible contamination (fuel / oil) on property? * No business acquisition would be required. Current access points could be maintained.	Moderate	
- Add 3rd lane for southbound traffic	* To maintain sidewalk as currently configured, would require approximately 18' strip of R.O.W. acquisition ending at 10th Ave S. * Likely two businesses would need to be acquired, significant parking / traffic circulation impacts at four other commercial properties west of Washington St corridor.	* Currently operates at LOS "F" during PM peak hour. Concept provides additional southbound capacity, requiring less through green-time. * May require moving retaining wall north of DeMers to add through lane while maintaining SB right turn lane. * On its own, concept reduces delays to LOS "E" by 2035.	* A significant number of properties along Washington St to the south of the intersection would need to be acquired. * Acquisition of gas station in SW corner of the interchange would require additional environmental investigation.	High	
- Add 3rd lane for northbound traffic	* Requires widening for 1/4 mile north of Washington; likely to University Ave. * Extensive R.O.W. impacts north of BNSF line	* Currently operates at LOS "F" during PM peak hour. Concept provides additional northbound capacity, requiring less green-time for this movement. * Would require widening of Washington St underpass of BNSF rail line. High cost is likely a fatal flaw. * On its own, concept reduces delays to LOS "E" by 2035.	* Acquisition of railroad property would be required. Property is adjacent to BNSF yard, roundhouse and turntable - possible contamination (fuel / oil) on property?	High	

Roadway Alternatives Assessment

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
2. Interchange Concepts - Reconstruct as a single point urban interchange (SPUI)	* Concept requires relocating the Fire Station in the Northeast corner of the interchange. How would this affect fire service for the community? * Loss of Washington St access for some businesses south of Demers Ave. * Significant traffic impacts due to delays / detours during interchange construction.	* Washington St would be lowered, several access points and at least one street (7th Ave) to the south will need to be closed. * Potential drainage issues with a depressed Washington St. * Westbound off-ramp would be about 200' downstream from the 4th Ave westbound on-ramp: very short weaving distance. * With dual left-turns on all approaches, and a dual eastbound right-turn lane SPUI intersection would operate at LOS "C" in 2035. Through traffic on DeMers would be grade-separated and have no delays.	* Railroad property acquisition would be required adjacent to BNSF yard, roundhouse and turntable - possible contamination (fuel / oil) on property? * At least 3-4 properties would be acquired, with other acquisitions along Washington St south of Demers Ave due to the loss of access. * Acquisition of gas station in SW corner of the interchange would require additional environmental investigation.	High	
- Reconstruct as a split-diamond interchange with 4th Ave S	* Concept affects operations into/out of Fire Station in the Northeast quadrant; likely requires relocating facility. * Loss of access to both Washington Street and DeMers for some businesses south of Demers Ave. * Significant traffic impacts due to delays / detours during interchange construction.	* Eastbound off-ramp and westbound on-ramp at DeMers/Washington; eastbound on-ramp and westbound off-ramp at 4th Ave S/Washington; a collector / distributor (C/D) road would be provided between each. * Eliminates short weave issue between Washington and 4th Ave associated with SPUI. * Washington St - C/D road intersections would operate at LOS "B" and "C" in 2035. Through traffic on DeMers would be grade-separated and have no delays.	* Reduced / limited property acquisition at BNSF yard compared to SPUI. * Potential 4f issue with park south of current 4th Ave S - DeMers interchange. * May require acquisition of gas station in SW corner of the interchange.	High	
3. Expand / Improve Adjacent Corridors - Convert University Ave / 2nd Ave N to a one-way pair between Washington St and downtown	* Concept increases traffic volumes (and potentially speeds) along University and 2nd Ave N. * Reduced access to residences -- from the opposite direction, traffic would have to "go around the block" to get home.	* Concept provides an improved alternate corridor connecting north downtown to Washington Street. * Would reduce WB left-turns in PM peak at Washington - DeMers, improving operations. Added WB left-turns at Washington - University may require dual WB left-turn lanes. * Would increase SB through traffic in PM peak - might need to consider adding third SB through lane on Washington St.	* Increased traffic impacts to neighborhood along University / 2nd Ave.	Low	
- Improve S 20th St between DeMers Ave and 32nd Ave	* Increases traffic volumes (and potentially speeds) along 20th St adjacent to approximately 150 homes, several apartment buildings, an elementary school and two parks/rec facilities.	* Concept adds left-turn lanes and signals (where warranted), affecting on-street parking at intersections. Given 20th St driveway density, consider removing on-street parking and striping a continuous center left-turn lane. * Would reduce WB left-turns in PM peak at Washington - DeMers, improving operations. Added WB left-turns at DeMers - 20th (currently 220 WB lefts in PM peak) would likely require dual WB left-turn lanes. * S 20th St currently designated a collector street; improvements would likely make 20th St function more as a minor arterial. * R.O.W. north of 17th Ave - 80'; south of 17th Ave - 90'.	* Increased traffic impacts to neighborhoods along S 20th St.	Low to Moderate	

32nd Avenue Congestion



Alternatives

- **TSM**
  - Add turn lanes at:
    - 38th St
    - 34th St
    - Columbia Rd
    - Washington St
- **Modify Current 32nd Ave / I-29 Interchange**
- **Expansion**
  - Widen 32nd Ave S to 7-lane cross-section
  - Create 47th Ave S Interchange
  - Create Merrifield Rd Interchange
  - 17th Ave S Overpass

Downtown DeMers Congestion

Alternatives

- **TSM**
  - **Implement CBD Traffic Study Recommendations:**
    - **Remove Minor Signals**
    - **Interconnect Systems**
    - **Retime Signals**
- **Expansion:**
  - Widen DeMers to 5-lanes

Roadway Alternatives Assessment

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
Congestion Along 32nd Avenue S					
1. Transportation Systems Management: - Add dual left-turn lanes for WB approach of 32nd Ave at 34th St.	* Minor R.O.W. acquisition would be required along 34th St in order to maintain sidewalk set-back. * Wider roadway cross sections increase pedestrian crossing times and concerns for pedestrian safety.	* Concept provides additional capacity for westbound left-turn movement. Allows greater green-time for eastbound through movement. * Requires widening of 34th St south to accommodate the WB dual left-turn lane. * Concept improves intersection to LOS "D" in 2035 compared to LOS "E" in 2035 No Build. * Protected left-turn phases should improve safety at the intersection, which has a higher-than-expected crash rate.	* No significant impacts anticipated.	Low to Moderate	
- Add dual left-turn lanes for NB and WB approaches of 32nd Ave at Columbia Rd.	* No significant impacts anticipated	* Concept provides additional capacity for these left-turn movements. Allows greater green-time for through movements. * On its own, this concept would provide LOS "D" in 2035 PM peak, compared to LOS "E" in 2035 No Build. * Current center medians are wide enough to accommodate these additional left-turn lanes.	* No significant impacts anticipated.	Low	
- Add dual left-turn lanes for NB and SB approaches of 32nd Ave at 38th St.	* Minor R.O.W. required.	* Concept provides marginally improved traffic operations, still at LOS "D". * This improvement may not be necessary with realignment / extension of 42nd St.		Low	
- Add additional eastbound and westbound through lanes at the intersection of 32nd Ave and Washington St.	* Minor R.O.W. impacts along Washington St in residential area.	* With signal timing adjustments, predicted 2035 No-Build average delay is 37 seconds, within two seconds of threshold of LOS "C"/LOS "D". This concept would improve average delay to 34 seconds. * R.O.W. east of Washington - 80'; west of Washington - 90'. * Minimal improvement in delay, relatively significant cost for improvement.	* Impact to cemetery or business in SW corner.	Moderate	
2. Interchange Modification: - Add loop ramps in the NW and SE quadrants, relocate the NB on-ramp in the NE quadrant of the I-29 / 32nd Ave interchange and realign 42nd St (2030 LRTP Recommendation)	* No significant impacts anticipated	* Loop ramps remove left-turn movements from 32nd Ave onto I-29, eliminating their traffic signal phases, allowing more green time for remaining movements. * The realignment of 42nd St with the I-29 NB off-ramp allows for direct access to the 42nd St corridor and removes some weaving traffic from the 32nd Ave corridor. * The ramp junction with I-29 for the NB on-ramp should be moved further to the north in order to create greater separation between the consecutive NB on-ramps (AASHTO recommends a minimum of 1000'). * The lower design speed for the loop ramp in the SE quadrant could be a potential safety concern.	* Minor ROW acquisitions required for the realignments of 42nd St and the SB off-ramp. * The realigned NB off-ramp would be located closer to the hotel in that quadrant. Potential noise and vibration concerns? * Requires Access Modification Request to FHWA (additional study).	Moderate to High	

Roadway Alternatives Assessment

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
- I-29 / 32nd Ave interchange NB on-ramp relocated to 42nd St.	* This is a more urban type design that some drivers may find confusing. With proper signing the new on-ramp would not be difficult to use. * The proposed ramp offers additional, direct NB I-29 access to the Alerus Center.	* The configuration would require vehicles accessing the ramp from 32nd Ave to traverse an additional intersection. * This configuration creates greater spacing between the consecutive northbound on-ramps.	* Acquisition of ROW to accommodate the new ramp. * Requires Access Modification Request to FHWA (additional study).	Moderate to High	
3. System Expansion / Widening: - Widen 32nd Ave to a 7-lane cross section between I-29 and Columbia Rd or Washington St (2030 LRTP Recommendation)	* Potential loss of parking for the business in the southwest corner of 32nd Ave and Washington St. * Wider roadway cross sections increase pedestrian crossing times and concerns for pedestrian safety.	* The wider cross section would require all 32nd Ave left-turn movements to be changed to protected only operations. This could have a negative impact for traffic operations, particularly for the left-turn movements. * Concept provides LOS "D" at 32nd - Columbia Intersection in 2035 PM peak, compared to LOS "E" in 2035 No Build.	* No ROW impacts throughout most of corridor. At Washington St, requires ROW takes from either the cemetery on the north side of 32nd Ave or parking for a business on the south side. * Impact to cemetery or business in SW corner of 32nd Ave - Washington St.	High	
- Create 47th Ave S Interchange	* Impact to RV Park / Campground adjacent to 47th Ave / I-29.	* Provides direct I-29 access to planned residential / commercial growth in south Grand Forks. * Reduces 2035 traffic volumes by 5,000 to 7,000 vpd along Columbia Road north of 32nd Ave. * Reduces 2035 traffic volumes by 2,000 to 9,000 vpd along 32nd Ave west of Columbia Rd.	* Requires Access Modification Request to FHWA (additional study).	Moderate to High	
- Create Merrifield Rd Interchange	* Would remove some truck traffic from urban streets of Grand Forks and East Grand Forks	* Complements planned Merrifield Rd Bridge providing a truck relief route, with a more direct I-29 - US 2 connection. * Interchange reduces 2035 traffic volumes by 2,000 vpd along Columbia Road north of 32nd Ave. * Reduces 2035 traffic volumes by 2,000 to 3,000 vpd along 32nd Ave west of Columbia Rd.	* Requires Access Modification Request to FHWA (additional study).	Moderate to High	
- Complete 17th Ave South Connection between 48th Street and 42nd Street with overpass of I-29 (2030 LRTP Recommendation)	* Limited property acquisition. * Improved access to S 48th St Business Park.	* Would divert approximately 2,000 to 3,000 vpd from 32nd Ave west of Columbia Rd.	* Coulee south of 17th Ave alignment.	Moderate to High	
DeMers Avenue Congestion, 5th Street (GF) to 4th Street NW (EGF)					
1. Transportation Systems Management: - Implement CBD Traffic Study Recommendations (Signal Removals and Signal System Interconnect)		* Remove signals at: 5th St / Bruce (GF), 2nd St / DeMers (GF), 2nd St / DeMers (EGF), 4th St / 3rd Ave (EGF) * Convert 3rd St / DeMers (EGF) to signal * Interconnect DeMers Ave and 5th St (GF) signal systems * Study found acceptable long-term operations with similar traffic levels.	* No significant impacts anticipated.	Low to Moderate	
2. Corridor Widening: - Widen DeMers Avenue to 5-lanes from 5th Street (GF) to 4th Street (EGF)	* R.O.W. through each downtown is 80 feet. * Significant property impacts through corridor. * Would require removal of on-street parking.	* Would require wider Sorlie Bridge. * Likely more capacity than required through 2035.	* A widened river crossing would require environmental documentation and agency review for approval.	High	

24th Ave Safety / Congestion

Alternatives

- TSM
  - Evaluate Roundabouts or Signals at:
    - 34th St – 24th Ave
    - 29th St – 24th Ave

Bygland Road Access / Congestion Issue

Alternatives

- **TSM**
  - Add turn lanes at key intersections
  - Remove Minor Street Accesses to Bygland Rd
  - Widen to 3-lanes (center left-turn lane
- **Expansion**
  - Widen to 5-lanes

THE FORKS Long Range Transportation Plan

Roadway Alternatives Assessment

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
Congestion at 17th Avenue - Washington Street Intersection					
1. Transportation Systems Management: - Add eastbound dual left-turn lanes	* Widen to south; approximately 12' of R.O.W. to maintain sidewalk setback. * Concept impacts parking for tire store on SW corner of intersection.	* Predicted 2035 No-Build delay is 36 seconds, within one second of LOS "C"/LOS "D" threshold of 35 seconds. * Projected to be 260 eastbound left turns during PM peak in 2035. Concept provides LOS "C" during PM peak for 2035.	* No significant impacts anticipated.	Low to Moderate	
24th Avenue - 34th Street and 29th Street Congestion and Safety					
1. Transportation Systems Management: - Reconstruct 24th Ave - 34th Street intersection as a single lane roundabout	* No significant impacts anticipated * A roundabout would be considered new for region and gaining acceptance can be more difficult.	* A roundabout intersection design results in lower entry speeds into the intersection, reducing crash severity. A roundabout can also viewed as traffic calming for the 34th St / 24th Ave corridor. * A roundabout design reduces the number of directions of traffic a motorist needs to view when looking for a gap to enter the intersection.	* Acquisition of ROW to the east and north of the current intersection in order to accommodate the new roundabout. * Property to the north of the current intersection is part of Lion's Park.	Low to Moderate	
- Provide a traffic signal for the 29th Street intersection	* No significant impacts anticipated * A traffic signal must be warranted before installation.	* A traffic signal should help alleviate many of angle crashes experienced at this intersection. * Resulting signalized intersection spacing between this intersection and the Columbia Rd / 24th Ave intersection is approximately 500'.	* No significant impacts anticipated.	Low	
- Reconstruct 29th Street intersection as a single lane roundabout	* The roundabout would be built to the west of the existing intersection to avoid impacting businesses in the NE and SE quadrants of the intersection. * A roundabout would be considered new for region and gaining acceptance can be more difficult.	* A roundabout intersection design results in lower entry speeds into the intersection and this reduces the severity of crashes. A roundabout can also viewed as traffic calming for the 34th St / 24th Ave corridor. * A roundabout intersection design reduces the number of directions of traffic a motorist needs to view when looking for a gap to enter the intersection. * Eastbound queues from the Columbia Rd / 24th Ave intersection could impact roundabout operations. * Long-term traffic operations may require a 2-lane roundabout.	* Acquisition of ROW in the NW and SW quadrants of the current intersection in order to accommodate the new roundabout. * A drainageway located to the west and south of this intersection would have to be enclosed to accommodate the roundabout design. * Property to the NW of the current intersection is part of Lion's Park.	Moderate	
Bygland Road Congestion / Access					
1. Transportation Systems Management: - Add left-turn lanes at key intersections.	* Limited impacts. * Bygland R.O.W. is approximately 150' wide south of 6th Street, 100' wide north of 6th Street.	* Reduces peak hour delays by separating the majority of left-turning traffic on Bygland from through traffic.	* No significant impacts anticipated.	Low	
- Widen to a 3-lane cross-section	* Maintains access to all drives / streets.	* Reduces peak hour delays by separating all left-turning traffic on Bygland from through traffic.	* No significant impacts anticipated.	Low to Moderate	

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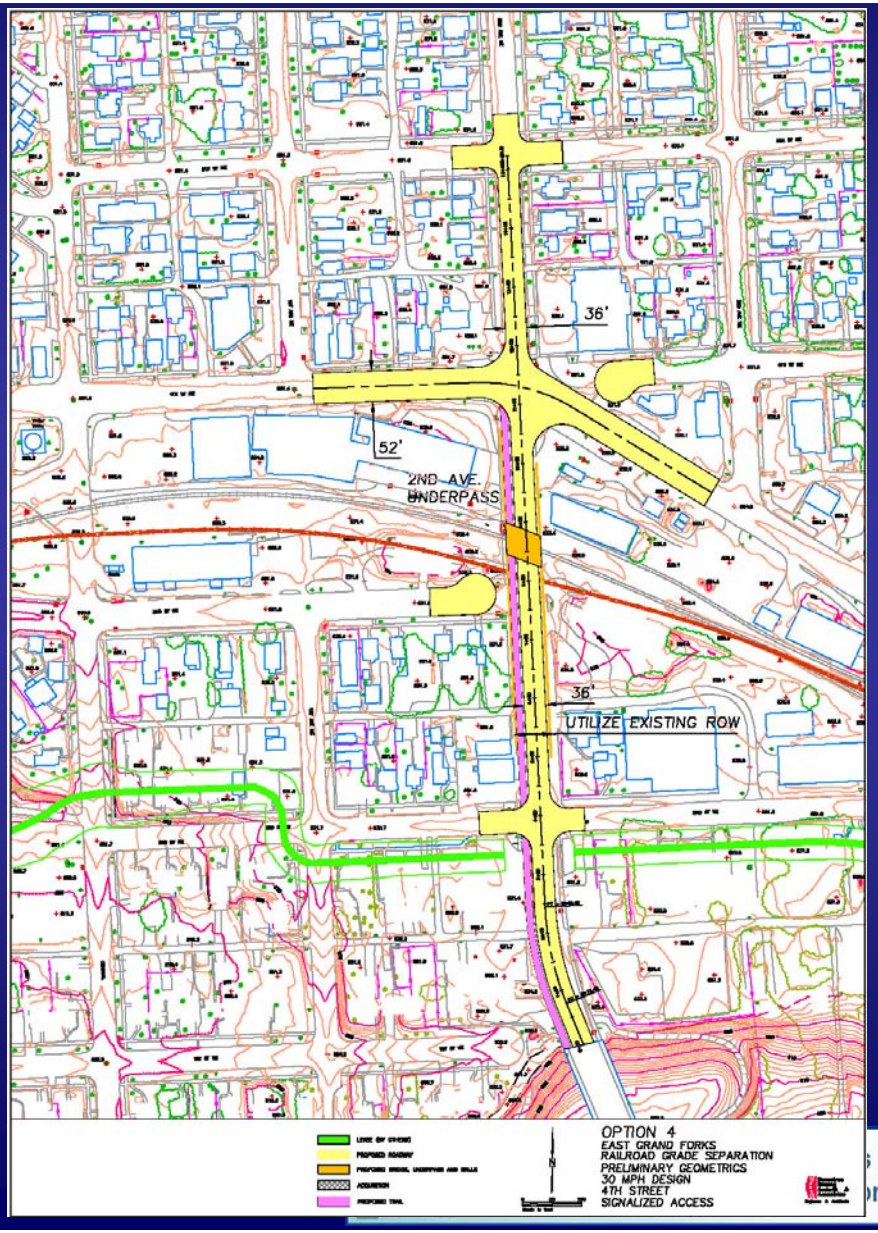
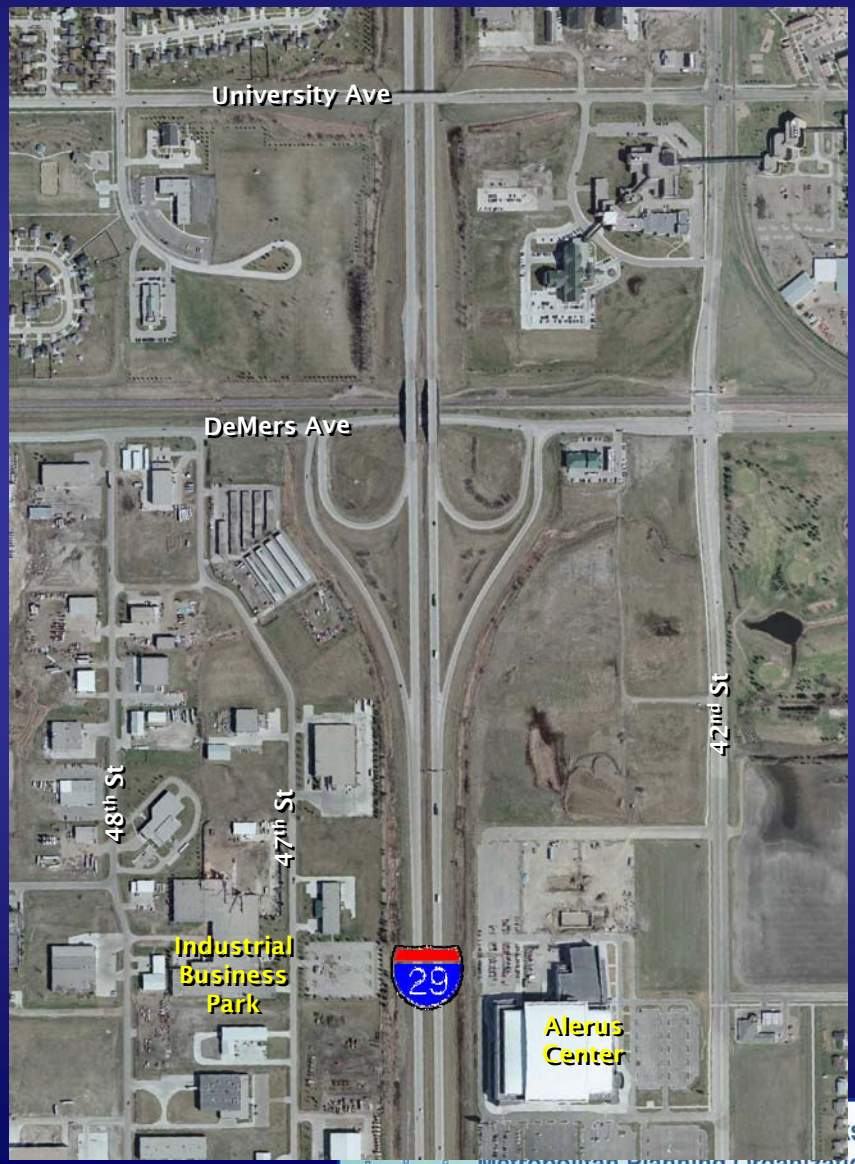
North-South Continuity EGF (Central Spine)



DeMers / 48th – I-29 Ramps Safety / Congestion

Alternatives

- **TSM**
  - Implement 48th St Study Recommendations: Turn Radii Improvements / Signalization
- **Expansion**
  - 17th Ave S – I-29 Overpass



Roadway Alternatives Assessment

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
- Consolidate minor street accesses along Bygland.	* Would increase traffic adjacent to some residences, reduce traffic adjacent to other residences. * Reducing access point density typically improves corridor safety.	* Focuses traffic turning onto Bygland to a smaller set of intersections. * Signals or roundabouts may be warranted at some of the remaining intersections, allowing easier access onto Bygland.	* Minor increase in out-of-direction travel.	Low	
2. Corridor Widening: - Widen Bygland Rd to 5-lanes from 1st St SE to Rhinehart Rd	* Limited impacts - Current R.O.W. could accommodate 5-lane cross-section with sidewalks. * Current Levee Opening is about 80' - impact on flood gate operations?	* TSM section likely provides sufficient capacity through planning horizon.	* No significant impacts anticipated.	Moderate to High	
North-South Continuity through East Grand Forks					
1. System Expansion - Implement Central Spine Concept, Option 4. Provide a 2nd Ave NE grade separation with BNSF mainline	* Limited social impacts compared to other grade separation options. * Public input during "Grade Separation Study" was decidedly opposed to R.O.W. acquisitions.	* Provides reliable corridor connecting north and south East Grand Forks by eliminating traffic delays associated with BNSF * 9 Trains a day	* Concept is consistent with public option found in Grade Separation Study's public outreach program - at that time there was opposition to concepts that involved residential property acquisitions.	High	
- Create new corridor including Red Lake River bridge connecting Bygland Rd to Business Highway 2.	* Potential impacts to houses / schools south of river due to new corridor alignment. * Potential impacts to industrial / commercial businesses adjacent to Business Highway 2.	* Murray Bridge and MN 220 Bridge are 3 miles apart. * Could potentially divert some traffic from Bygland Rd north of Middle School.	* A new river crossing would require environmental documentation and agency review for approval.	High	
DeMers Avenue Congestion, 48th Street to beginning of 4-Lane Section					
1. Transportation Systems Management (48th Street Study): - Improve turn radii at 48th / DeMers and SB I-29 / DeMers - Add traffic signals at 48th / DeMers and SB I-29 / DeMers when warranted	* Improves heavy truck access to industrial park.	* Provides sufficient operations / access into industrial park. Without improvements, unsignalized traffic operations degrade to LOS "F" by 2035.	* No significant impacts anticipated.	Low	
2. System Expansion - Complete 17th Ave South Connection between 48th Street and 42nd Street with overpass of I-29 (2030 LRTP Recommendation)	* Limited property acquisition.	* Would divert approximately 2,000 to 3,000 vpd from DeMers Ave west of 42nd St.	* Coulee south of 17th Ave alignment.	Moderate	

University Ave Pedestrian Safety

Alternatives

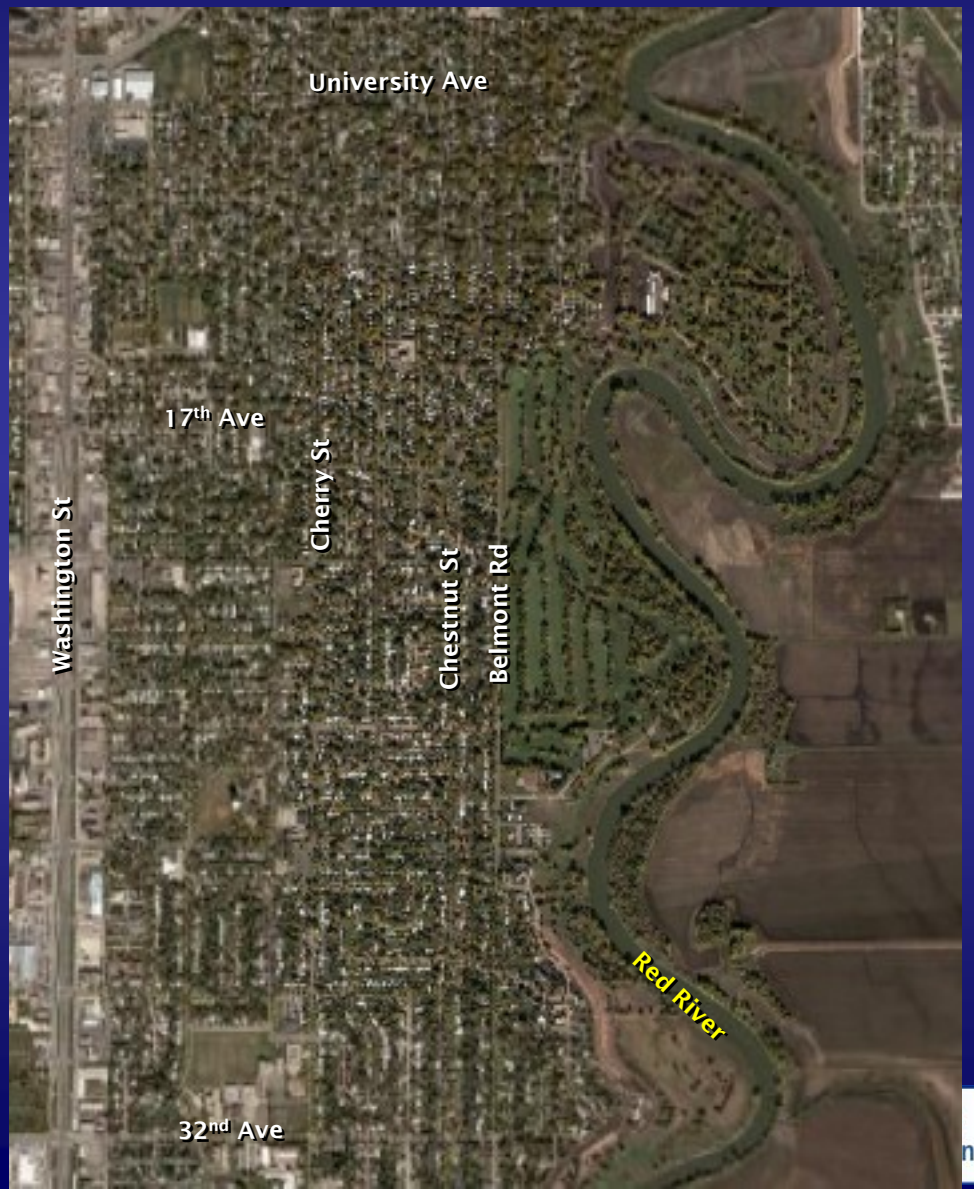
- Add Pedestrian Crossing Signals / More Signing in Corridor
- Add Pedestrian Overpasses in Corridor
- Close University Ave to Vehicle Traffic, 42nd Street to Columbia Rd

Grand Forks - East Grand Forks Metropolitan Planning Organization

Belmont Road Through Traffic

Alternatives

- **TSM**
  - Implement Traffic Calming along Belmont St
  - Speed Enforcement Program
- **Expansion**
  - Improve Parallel Corridors
    - Chestnut St
    - Cherry St



Roadway Alternatives Assessment

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
University Avenue corridor through UND Campus					
1. Additional pedestrian signals / advanced warning signage in corridor	* Signals provide gaps for pedestrians during high traffic volume periods	* Provides protected crossings for pedestrians. * Would add delays to traffic flow through University Avenue Corridor.	* No significant impacts anticipated.	Low	
2. Pedestrian overpass(es) in key location(s)	* Does not appear to be tunnel connections across University Ave	* Relatively easy for pedestrians to cross University Ave today. Effort of climbing ramp / stairs would likely discourage many pedestrians from using overpass. * Would not meet typical pedestrian crossing warrants.	* No significant impacts anticipated.	Moderate	
3. Close University Ave to through traffic		* Currently carries between 8,300 and 9,300 vpd. * 2035 Forecast: 9,000 vpd to 12,000 vpd. * Would divert approximately 4,000 vpd to DeMers, 4,000 vpd to 6th Ave N, 2,000 vpd to Gateway Dr.	* Increase in regional VMT.	Low	
Access to Businesses south of 32nd Avenue to / from Columbia Road					
1. New Traffic Signals - Signalize 34th Ave S - Columbia Rd intersection	* Benefits access into / out of retail area.	* Signal spacing not consistent with planning guidance for Columbia Rd - 1/2 mile signal spacing. * Dense signal spacing has negative impact on Columbia Rd traffic flow.	* No significant impacts anticipated.	Low	
- Signalize 36th Ave S - Columbia Rd intersection	* Improved 36th Ave provides backage roadway - benefits access into / out of retail area.	* Improved signal spacing at 1/4 mile, but not consistent with guidance for Columbia Rd - 1/2 mile signal spacing.	* No significant impacts anticipated.	Low	
Belmont Avenue Through Traffic Concerns					
1. Introduce traffic calming measures in corridor	* Intent would be to reduce average speeds closer to posted speed of 25 mph. * Appropriate calming program could reduce average travel speeds in corridor.	* Belmont is a minor arterial: it's function includes serving through traffic. * Pavement width is already relatively narrow - 30' wide for two travel lanes and one lane of on-street parking.	* No significant impacts anticipated.	Low to Moderate	
2. Improve adjacent corridor(s) to relieve traffic on Belmont	* Reduce traffic volumes on Belmont. * Would increase traffic volumes on improved street(s).	* Difficult to identify alternate corridor: - Chestnut St (1 block west) is continuous corridor, but classified as a local street - Cherry Street is a collector, not intended for through traffic. - Washington Street is 3/4 mile west, and has peak hour delays at DeMers intersection.	* No significant impacts anticipated.	Moderate to High	
3. Implement speed enforcement program in corridor	* An aggressive program will likely provide at minimum a temporary reduction in corridor speeds.	* Documenting speeds is the first step in establishing need for corridor traffic calming program.	* No significant impacts anticipated.		

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Roadway Alternatives Assessment

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
4th Avenue South Through Traffic Concerns					
1. Transportation System Management - Introduce traffic calming measures in corridor	* Intent would be to reduce average speeds closer to posted speed of 25 mph. * Appropriate calming program could reduce average travel speeds in corridor.	* 4th Ave S is a minor arterial: it's function includes serving through traffic. * East of Cherry St, pavement width is already relatively narrow - 30' wide for two travel lanes and one lane of on-street parking.	* No significant impacts anticipated.	Low to Moderate	
- Implement speed enforcement program in corridor	* An aggressive program will likely provide at minimum a temporary reduction in corridor speeds.	* Documenting speeds is the first step in establishing need for corridor traffic calming program.	* No significant impacts anticipated.		
2. System Expansion - Construct 32nd Ave S crossing of Red River (2030 LRTP Recommendation)	* Would reduce traffic adjacent to 4th Ave S homes, while increasing traffic adjacent to 32nd Ave S homes.	* Projected to divert approximately 2,000 to 5,000 vpd from 4th Ave S corridor by 2035. * Current plan is to construct 32nd Ave S bridge after completion of the Merrifield Rd bridge.	* A new river crossing would require environmental documentation and agency review for approval.	High	
Safety Issue at Gateway Avenue - 5th Street Intersection and Rail Crossing					
1. Provide additional lane striping and gates warning stopped vehicles to stay off of tracks	* Could reduce potential for auto-train crashes at this crossing.	* 5th St - Gateway intersection and rail crossing are less than 100' apart. * Rail line carries 3 trains / day. 2005 ADT: 24,700 vpd * Current cantilever lights and additional flashing sign provide significant warning to autos of approaching trains. * Average train operating speed is less than 10 mph.	* No significant impacts anticipated.	Low	
2. Provide Grade Separation of Gateway / BNSF Mill Spur Line	* Eliminates delays and safety issues associated with at-grade crossing * Loss of access to adjacent businesses	* Would require grade separation of 5th St and Gateway in addition to rail line, due to close spacing of 5th St and rail line. * No reported crashes over 2003 to 2005 analysis period	* Business acquisitions likely.	High	
Safety Issue at University Ave - BNSF Rail Crossing west of 9th St					
1. Provide flashing signals as advance train crossing warning	* Flashing rail signals could provide a more safe rail crossing to vehicular and pedestrian traffic.	* Rail line carries 3 trains / day. 2005 ADT: 5,000 vpd * No reported crashes over 2003 to 2005 analysis period * Average train operating speed is less than 10 mph.	* No significant impacts anticipated.	Low	
2. Improve sight distance by realigning rail line to run more perpendicular to University Ave	* Would require acquisition of new R.O.W., likely several residences.	* BNSF Right-of-way approximately 100' * Any significant rail re-alignment (if possible) would be outside of existing BNSF R.O.W. * High cost likely a fatal flaw.	* No significant impacts anticipated.	High	

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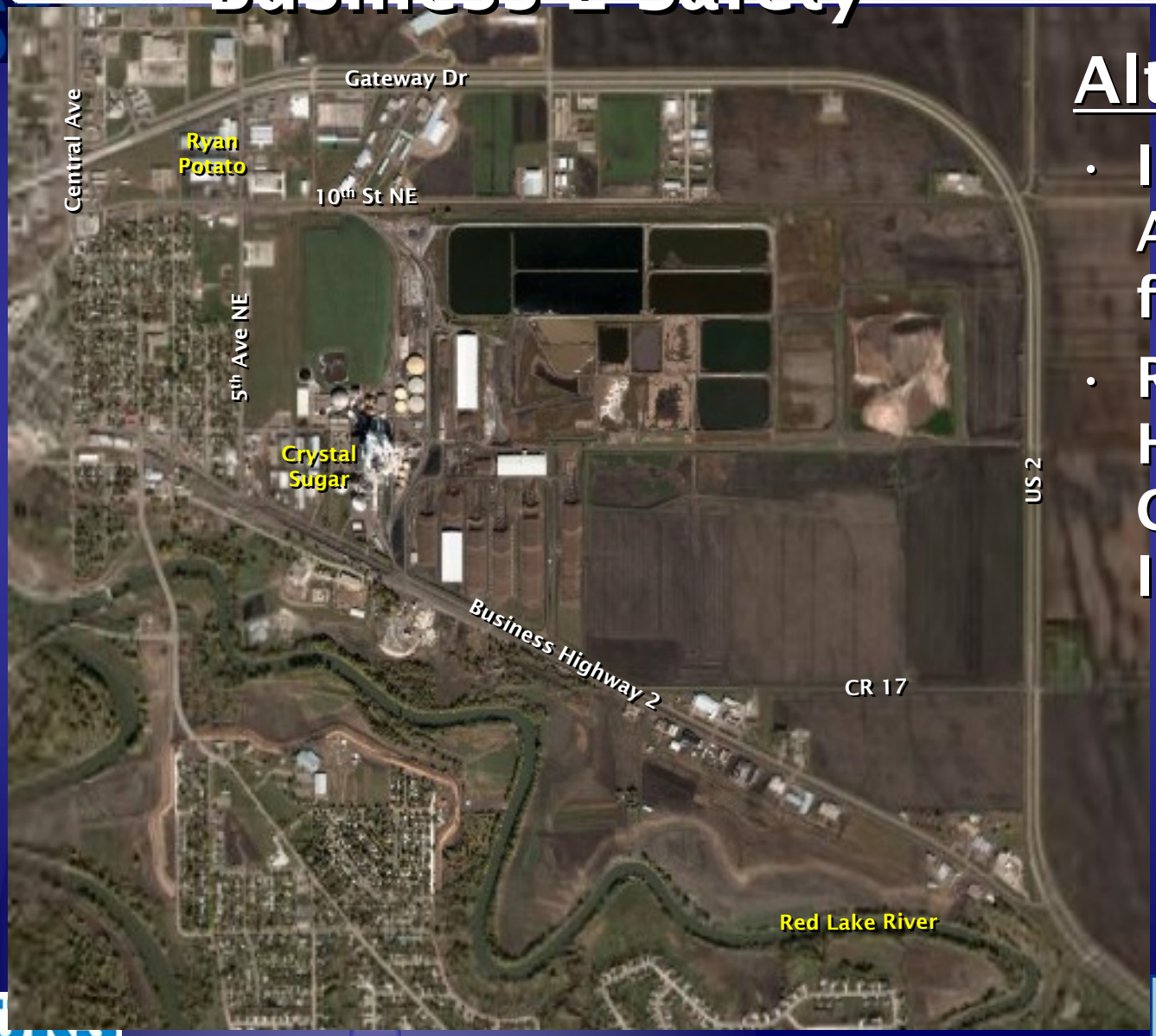
Plant Truck Circulation / US 2 – Business 2 Safety



Alternatives

- Improve Truck Access via US 2 from East
- Realign Business Highway 2 to use County 17 Intersection

Roadway Alternatives Assessment

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
Delays Associated with Gateway Ave Rail Crossing (east of 42nd St)					
1. Provide Grade Separation of Gateway / BNSF Glasston Line	* Eliminates delays and safety issues associated with at-grade crossing * Trains reportedly stop on tracks. * Potential need to find new access point for frontage road east of tracks.	* Car-train injury crash in March 2003 * 2 Trains per Day. 2005 ADT: 18,800 vpd * Average train operating speed is less than 25 mph. * DeMers Ave would be alternate route for Gateway traffic during delay. * Requires 42nd St - Gateway grade separation of in addition to rail line due to close rail - 42nd St spacing.	* No significant impacts anticipated.	High	
Truck Traffic Related to East Grand Forks Potato and Sugar Beet Plants					
1. Improve access to plants from Highway 2.	* Would reduce heavy truck traffic on residential streets including 5th Ave E.	* 5th Street has recently been improved to handle high truck volumes. * Alternatives that orient truck traffic to east of plants would require out-of-direction travel for many trucks. * Requires compliance by trucks accessing plants. * Truck restrictions not allowed on MnDOT - funded roads. * Delivery operations at SW corner of property, away from US 2	* No significant impacts anticipated.	Low to Moderate	
Safety Issue at US 2 / Business 2 Intersection					
1. Realign Business Highway 2 - Use current CR 17 alignment and close current Business 2 / US intersection	* Creates minor out-of-direction travel for business located along Business Hwy 2 southeast of current CR-17/Business 2 intersection.	* CR 17 intersection, 1/2 mile north of current Business 2 intersection, would provide better sight distance due to 90 degree intersection. * Provides better sight distance, safer overall intersection. * Issues with roadway jurisdiction.	* Reduction in pass-by traffic for businesses, likely minimal impact	Low to Moderate	
Future Congestion Along Current Rural, Two-Lane Roadways					
1. When development occurs, widen rural, two-lane roadways to urban, 4-lane divided cross-sections - 32nd Ave west of I-29, Columbia Rd south of 32nd Ave, Washington St south of 47th Ave, 47th Ave South between Columbia Rd and Washington St.	* Provide sufficient capacity to 25+ year growth areas.	* Provides consistent design with adjacent urbanized roadway segments * Provides acceptable traffic operations through 2035.		Moderate to High	
Safety Issue at Gateway Drive / Central Avenue Intersection					
1. Implement Gateway Drive Access Management Study Recommendations	* Diverts locally-generated traffic to new access points at 5th Ave NW and 2nd Ave NE.	* New signal-controlled intersections would be coordinated with Central Ave intersection. * On its own, 5th Ave NW intersection diverts 3,000 vpd from north leg of Central Ave - Gateway Dr intersection in 2035. * Intersection will have acceptable traffic operations through 2035.	* No significant impacts anticipated.	Moderate	

Roadway Alternatives Assessment

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective				Initial Screening Recommendation
	Social	Engineering	Environmental	Cost Estimate	
New Red River Crossings					
1. Construct Merrifield Road crossing of Red River (2030 LRTP Recommendation)	* Offers south bypass route for trucks, connecting I-29 south of Grand Forks to US 2 south of East Grand Forks. * Improves general system continuity between southern metro area, high growth sector.	* Preliminary forecasted to attract between 3,000 and 5,000 vpd in 2035. * In conjunction wth Merrifield Road interchange, provides some diversion of traffic from 32nd Ave S congestion.	* Additional environment documentation / agency review required. * Tie-in Cole Creek diversion provides flood protection benefits.	High	
2. Construct 32nd Ave S crossing of Red River (2030 LRTP Recommendation)	* Would reduce traffic adjacent to 4th Ave S homes, while increasing traffic adjacent to 32nd Ave S homes. * Diverts traffic from Point Bridge.	* Projected to divert approximately 2,000 to 5,000 vpd from 4th Ave S corridor by 2035. * Preliminarily Projected to attract approximately 4,000 to 6,000 vpd to 32nd Ave S between Washington and Belmont.. * Current plan is to construct 32nd Ave S bridge after completion of the Merrifield Rd bridge. * Improves system continuity by connecting south Grand Forks and south East Grand Forks; both high-growth areas through planning horizon.	* A new river crossing would require environmental documentation and agency review for approval.	High	
DeMers / 42nd Street Grade Separation					
1. Grade Separate 42nd Street from BNSF Rail Line - Maintain access between DeMers and 42nd via Interchange	* Improves reliability of access to UND campus, travel along 42nd St. * Some R.O.W. impacts with University property.	* Eliminates train delays for 42nd Street traffic.		High	
North Bypass of Metro Area					
1. Create East-West Bypass Corridor on North Fringe of Grand Forks - East Grand Forks Urban Area	* No anticipated acquisitions of houses or businesses. * Represents longer travel distances, which can be difficult to encourage out-of-direction travel.	* Provides direct bypass route for traffic to/from I-29 north of GF to US 2 east of EGF and US 2 through traffic. * Diverts approximately #,000 vpd from Gateway Corridor (awaiting ATAC model run). * Concept does not directly address any identified capacity deficiencies.	* Requires conversion of agricultural land. * 27th Ave N / 23rd St N alignment would impact EGF golf course. * A new river crossing would require environmental documentation and agency review for approval.	Very High	
Airport Road / Highway 2 Safety Concerns					
1. Current Highway 2 Reconstruction Project should address this.	* Issue raised during involvement process.	* Currently a signalized with flashing advanced warning to traffic on Highway 2.	* No significant impacts anticipated.	Low	
Sight-Distance / Truck Acceleration Concern for NB I-29 DeMers On-Ramp					
1. Programmed I-29 Reconstruction Project should address this.	* Issue raised by trucking industry representative during involvement process.	* Increased acceleration lane length should allow increased truck speeds, further distance from crest of hill during merge.	* No significant impacts anticipated.	Low to Moderate	

Wrap Up

- Action Items Requiring Additional Analysis
- Initiate Second Level Screening
- Follow Up Documentation

APPENDIX D:

JUNE 2007 PRESENTATION TO MPO TAC: SECOND LEVEL ALTERNATIVES SCREENING (FIRST ITERATION)

2035 Regional Transportation Plan

June 20, 2007

TAC Workshop

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Meeting Agenda

- Workshop Purpose
- Address Questions / Comments on Prioritization and Costs (Method and Assumptions)
- Alternatives Discussion by Issue (Bulk of Workshop)
- Next Steps
- Other

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Workshop Purpose

- For Locations Where Multiple Improvement Alternatives Remain:
  - Select the Locally Preferred Alternative
- Develop Preliminary Recommended Projects List(s)/Package(s):
  - Incorporate “Scoring” Results
  - Consider Funding Limits (Expansion)
    - North Dakota: $109 Million Less $8 Million Expansion in TIP = $101 Million
    - Minnesota: $25 Million Less $3 Million Expansion in TIP = $22 Million

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Alternatives Screening Phase II

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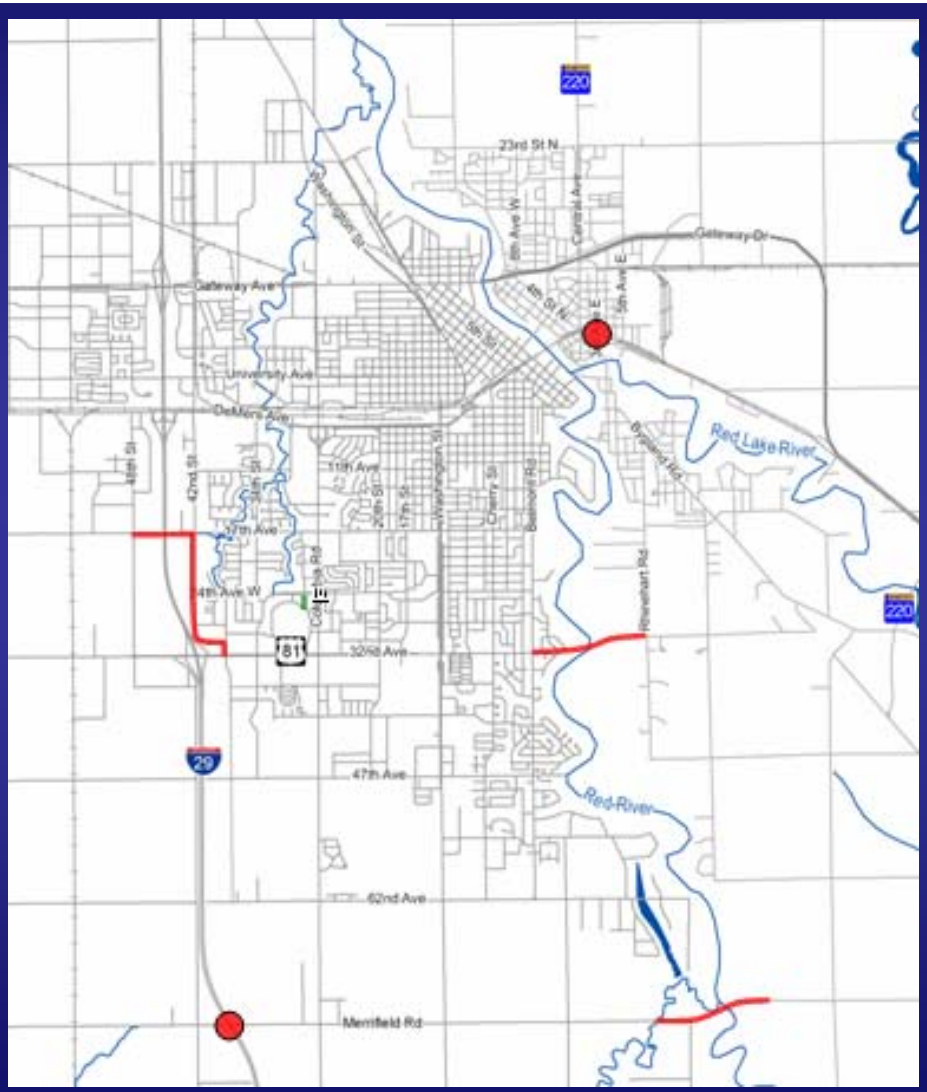
2035 Base "Confirmed" Package

- Improvements From 2003 Plan Carried Forward:
  - Merrifield Road Interchange / River Crossing
  - 32nd Ave River Crossing
  - Central Spine / 2nd Ave NE Grade Separation
  - 17th Ave / I-29 Overpass
  - 42nd St Widening, 17th Ave to 32nd Ave



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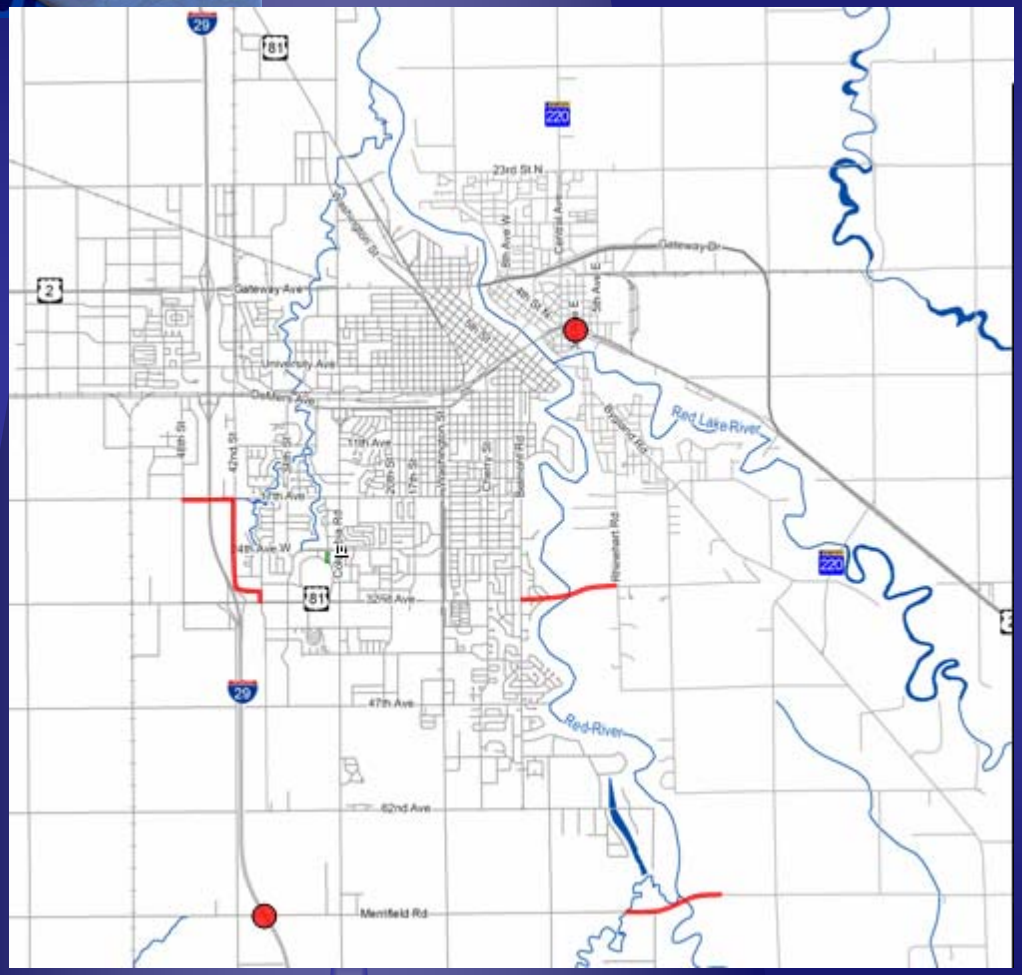
Alternatives Analysis By Issue Area

2035 Base Confirmed Package



- Base Package Cost: $69.1 Million:
  - $57.3 M in North Dakota
  - $11.8 M in Minnesota
- Improved Operations at Washington / DeMers in Base – still requires improvements

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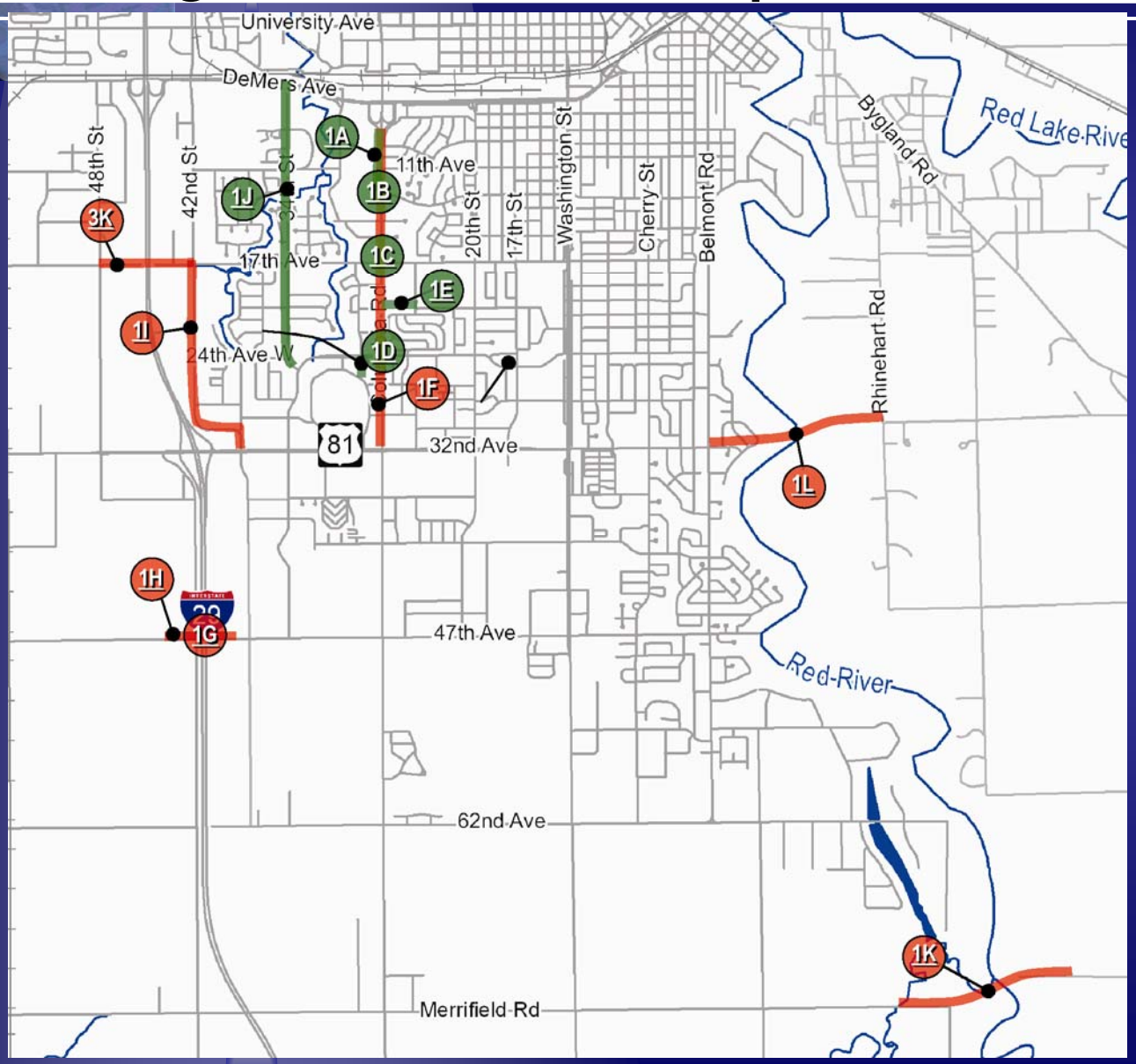
Columbia Road Congestion

Range of Retained Improvement Concepts



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Columbia Road Congestion
TSM Improvements in Corridor

Issue	Alternative ID	Improvement Description	Social					Engineering			Environmental						Draft Total Score
			Local Public Support for Project	Multi-Modal Support	Consistency with Local / Regional Plans	Connectivity / Continuity	Consistency with Economic Development Activities	Safety	Congestion Relief	Security	VHT / VHT / Trip Generation	Air Quality	Built / Natural Environment Impacts	Economic Impact	Cost	Operations and Maintenance	
Columbia Road Congestion Relief																	
TSM Projects																	
	1 A	Columbia Rd, DeMers to 13th Ave: Add southbound lane	6	2	4	2	6	4	4	2	0	2	6	2	6	2	48
	1 C	17th Ave S / Columbia Rd: Add dual left-turn lanes for all approaches	6	0	2	2	6	4	6	2	2	2	4	2	6	2	46
	1 B	13th Ave S / Columbia Rd: Add Southbound dual left-turn lanes	6	0	2	2	6	4	6	2	0	2	4	2	6	2	44
	1 E	Extend 20th Ave South between Columbia Rd and 25th Street	4	2	4	4	2	4	4	2	0	2	4	2	6	2	42
	1 D	24th Ave / Columbia: Dual left-turn lanes for SB approach	6	0	2	2	6	4	4	2	0	2	4	2	6	2	42
		TSM Package Average															44

Issue	Alternative ID	Improvement Description	Draft Total Score
Columbia Road Congestion Relief			
TSM Projects			
	1 A	Columbia Rd, DeMers to 13th Ave: Add southbound lane	48
	1 C	17th Ave S / Columbia Rd: Add dual left-turn lanes for all approaches	46
	1 B	13th Ave S / Columbia Rd: Add Southbound dual left-turn lanes	44
	1 E	Extend 20th Ave South between Columbia Rd and 25th Street	42
	1 D	24th Ave / Columbia: Dual left-turn lanes for SB approach	42
		TSM Package Average	44

Add Southbound Lane to Columbia from DeMers Ave to 13th Ave S

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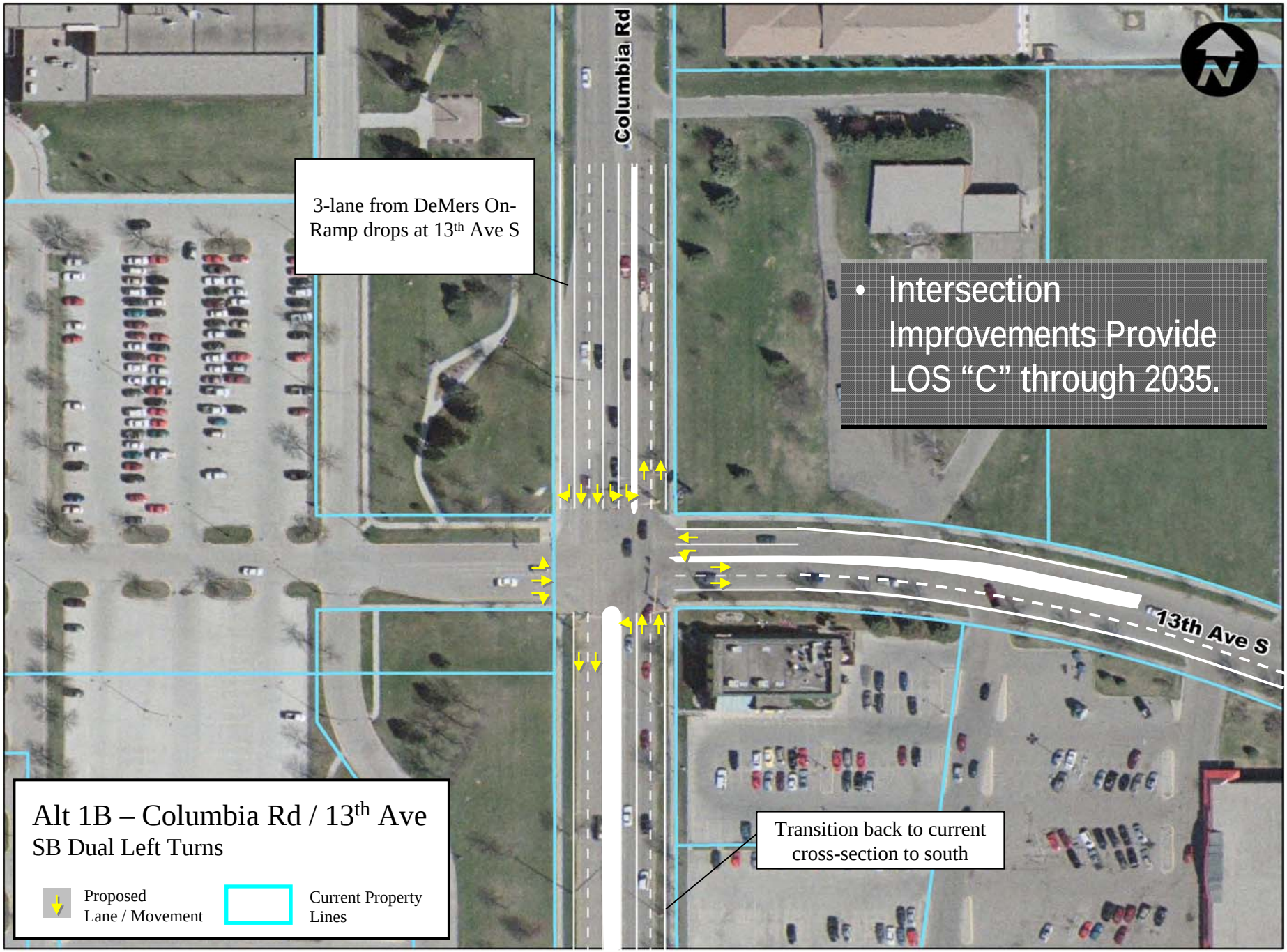
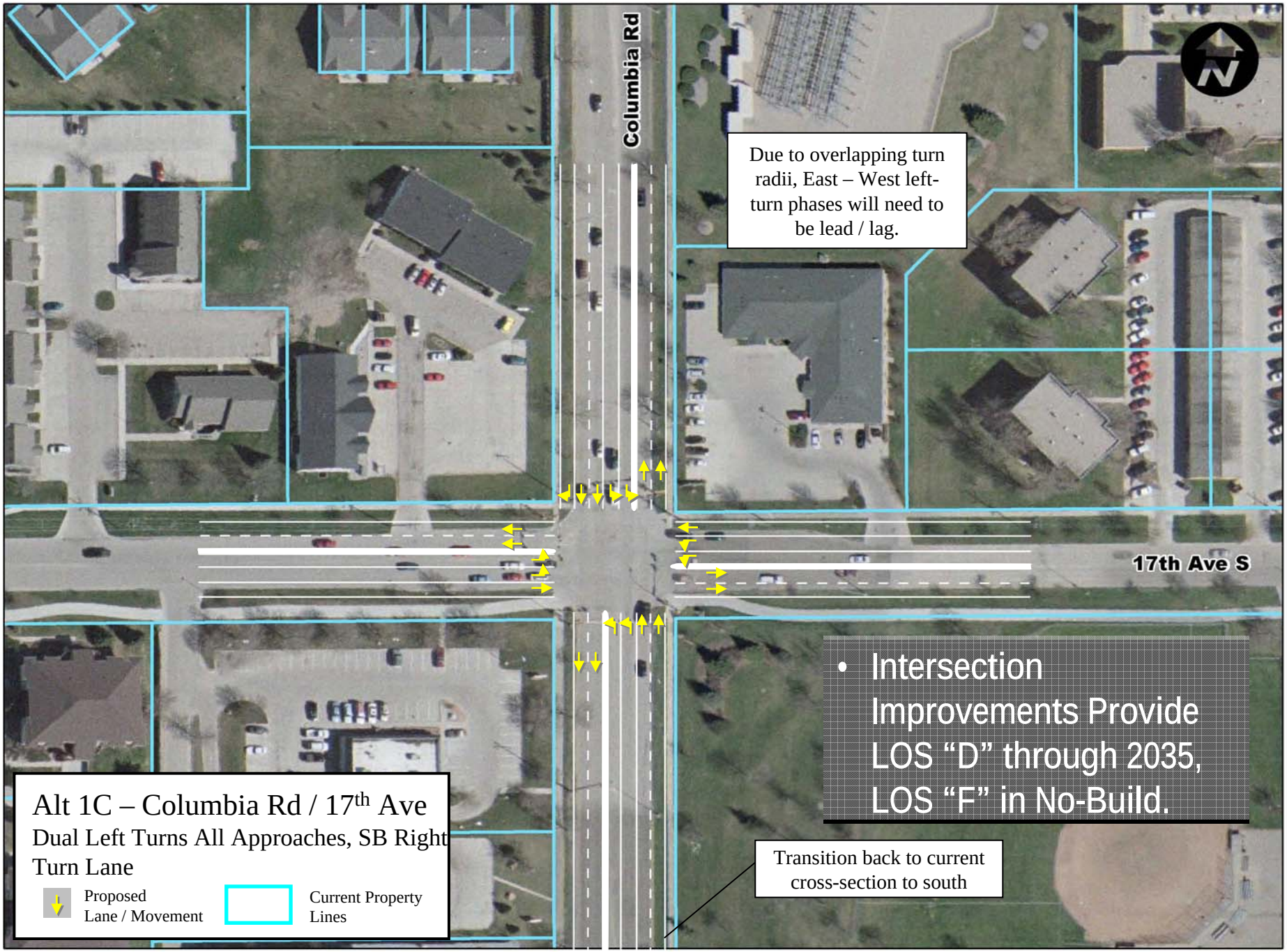
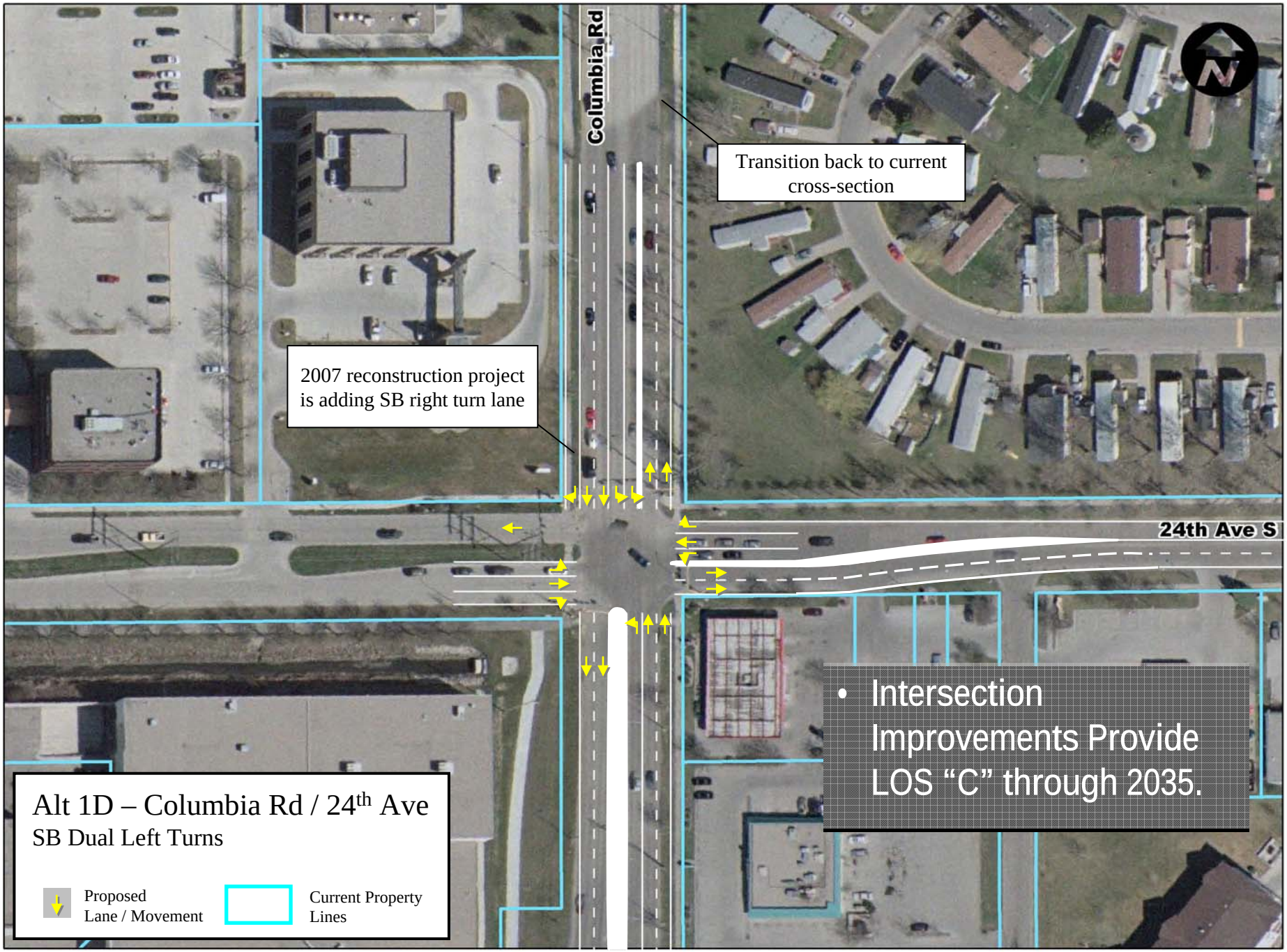
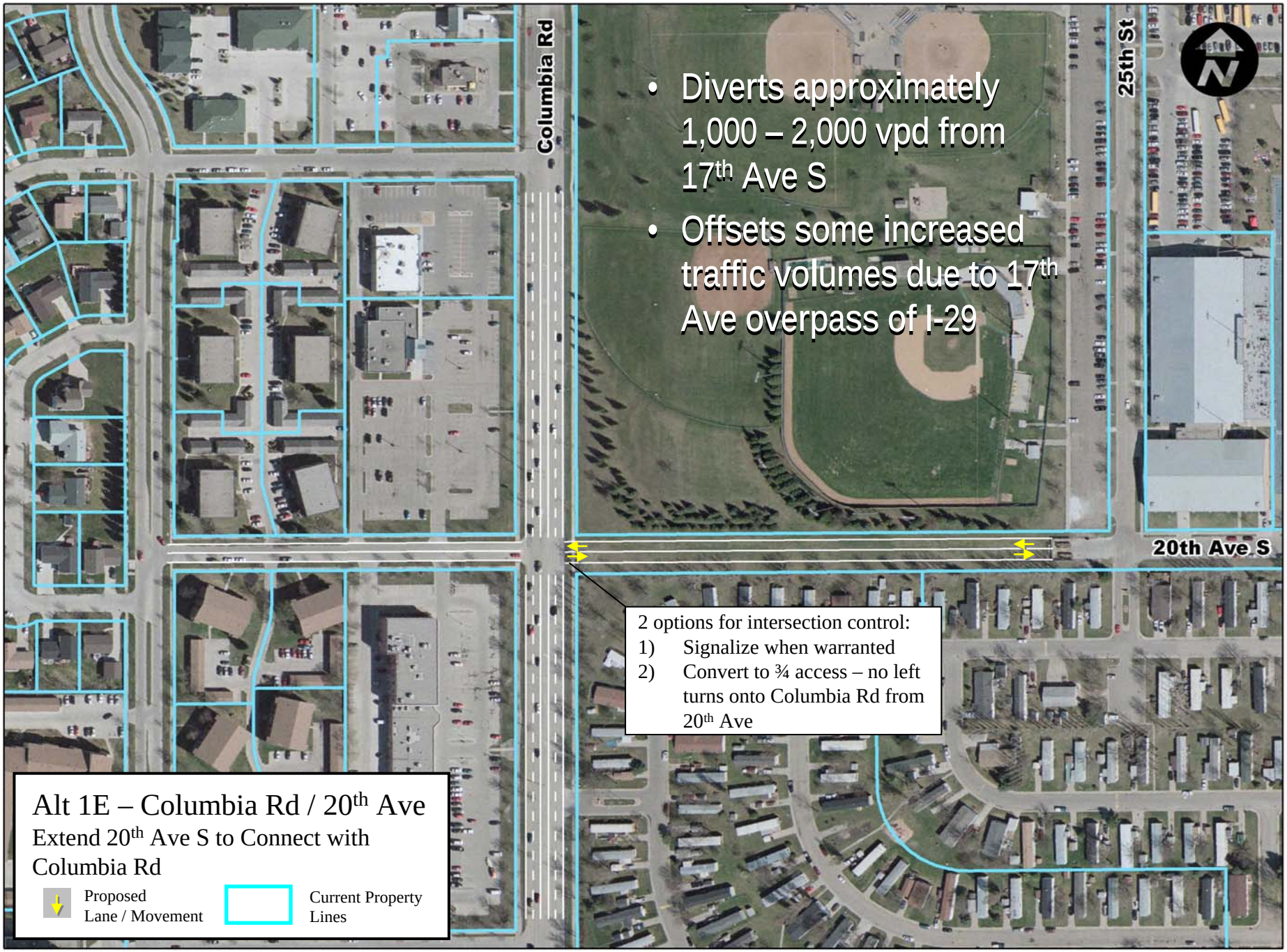

Columbia Rd
13th Ave S
3-lane from DeMers On-Ramp drops at 13th Ave S
• Intersection Improvements Provide LOS "C" through 2035.
Transition back to current cross-section to south
Alt 1B – Columbia Rd / 13th Ave
SB Dual Left Turns
Proposed Lane / Movement
Current Property Lines


Columbia Rd
17th Ave S
N
Due to overlapping turn radii, East – West left-turn phases will need to be lead / lag.
• Intersection Improvements Provide LOS "D" through 2035, LOS "F" in No-Build.
Transition back to current cross-section to south
Alt 1C – Columbia Rd / 17th Ave
Dual Left Turns All Approaches, SB Right Turn Lane
Proposed Lane / Movement
Current Property Lines


Columbia Rd
24th Ave S
Transition back to current cross-section
2007 reconstruction project is adding SB right turn lane
Alt 1D – Columbia Rd / 24th Ave
SB Dual Left Turns
Proposed Lane / Movement
Current Property Lines
• Intersection Improvements Provide LOS "C" through 2035.


Columbia Rd
25th St
20th Ave S
N
• Diverts approximately 1,000 – 2,000 vpd from 17th Ave S
• Offsets some increased traffic volumes due to 17th Ave overpass of I-29
2 options for intersection control:
1) Signalize when warranted
2) Convert to ¾ access – no left turns onto Columbia Rd from 20th Ave
Alt 1E – Columbia Rd / 20th Ave
Extend 20th Ave S to Connect with Columbia Rd
Proposed Lane / Movement
Current Property Lines

Columbia Road Congestion TSM Summary

- Intersection Improvements at 13th Ave S and 24th Ave S Provide LOS "C" through 2035.
- Intersection improvements at 17th Ave S Provide LOS "D" through 2035.
  - –LOS "C" with Improvements to Adjacent Corridors

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Columbia Road Congestion Expansion / Improvements in Adjacent Corridors

Issue	Alternative ID	Improvement Description	Social					Engineering			Environmental						Draft Total Score
			Local Public Support for Project	Multi-Modal Support	Consistency with Local / Regional Plans	Connectivity / Continuity	Consistency with Economic Development Activities	Safety	Congestion Relief	Security	VMT / VHT / Trip Generation	Air Quality	Built / Natural Environment Impacts	Economic Impact	Cost	Operations and Maintenance	
Expansion Projects																	
	1 F	Widen Columbia Road to 7-lanes between Demers Ave and 32nd Ave	2	6	2	2	2	0	4	2	0	2	2	2	2	2	30
Adjacent Corridors																	
	1 L	32nd Ave S crossing of Red River	4	4	2	6	4	2	4	6	4	4	4	6	2	0	52
	1 K	Merrifield Road crossing of Red River	6	4	4	6	4	2	4	6	2	2	4	4	2	0	50
	1 I	Widen 42nd St to 5-lanes between 17th Ave S to 32nd Ave S	6	6	4	2	6	2	4	2	0	2	6	4	4	2	50
	1 G	Create 47th Ave S / I-29 Interchange	2	2	4	6	2	2	4	4	4	4	4	4	2	0	44
	1 J	Add left-turn lanes along 34th Street between DeMers Ave and 24th Ave S	4	0	2	2	2	2	4	2	0	2	4	0	6	2	32
	1 H	Create 47th Ave S Overpass of I-29	2	4	2	4	2	0	0	4	0	2	6	2	4	0	32

URS TRANSPORTATION

THE FORKS Long Range Transportation Plan

Alternative 1F: Widen Columbia Rd to 7 Lanes

- If sidewalk setback is maintained, R.O.W. impacts anticipated. Current R.O.W. is 100' wide.
- No anticipated business acquisitions.
- Requires protected-only left-turns.
- Provides LOS "E" at 17th / Columbia in 2035.

Alternative 1G: 47th Ave S Interchange

This concept “folds” SB on-ramp to avoid impacts to RV park.

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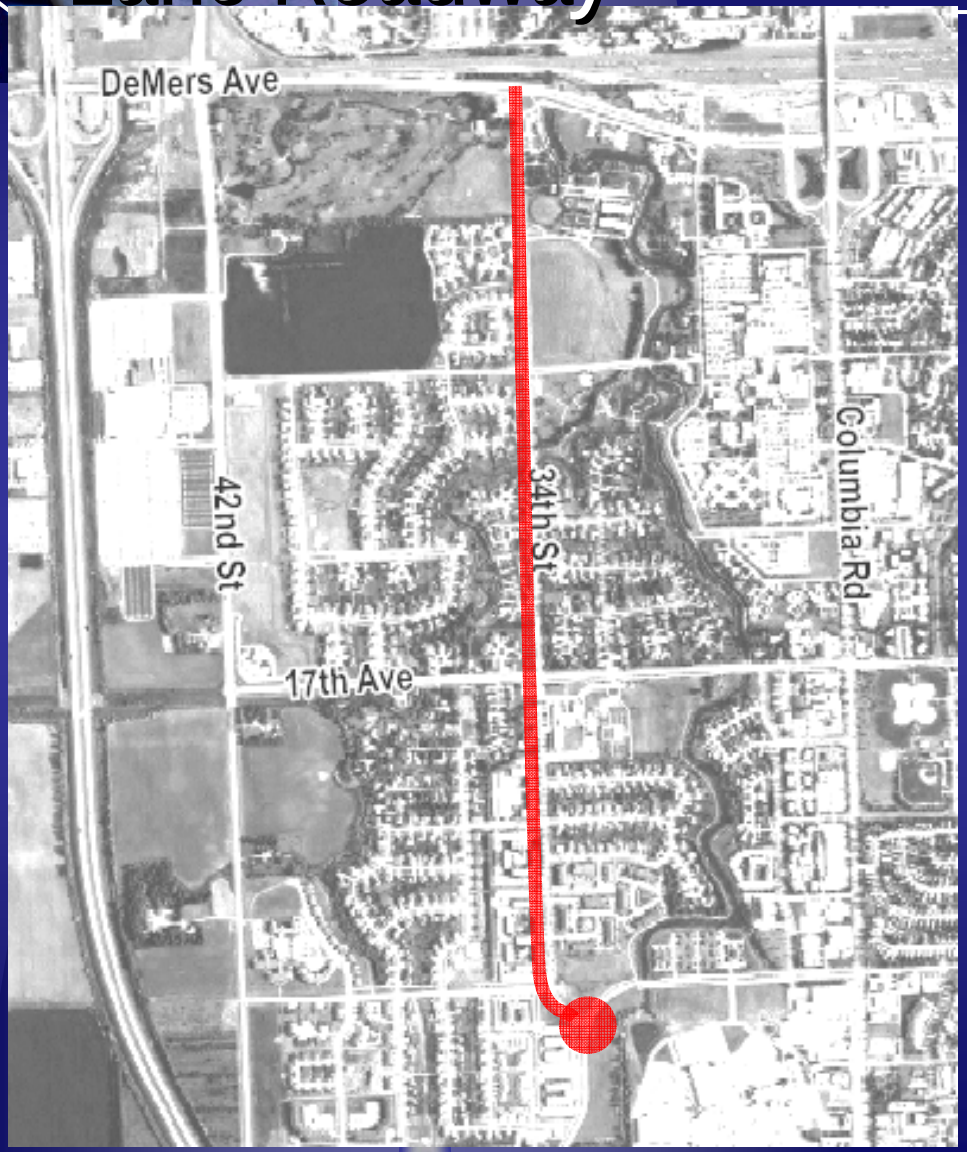
THE FORKS Long Range Transportation Plan

Alternative 1J: 34th Street – Restripe as a 3-Lane Roadway



- No R.O.W. impacts.
- Restripe to provide turn lanes at key intersections.
- Remove some on-street parking.
- Limited residential access to 34th Street (approximately 5 houses).

URS TRANSPORTATION

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Alternative 1I: Widen 42nd Street to a 5-Lane Roadway

- Limited R.O.W. impacts.
- Provides 2,000 vpd diversion from Columbia.
- Consider on-street bicycle lanes as extension of existing trails.

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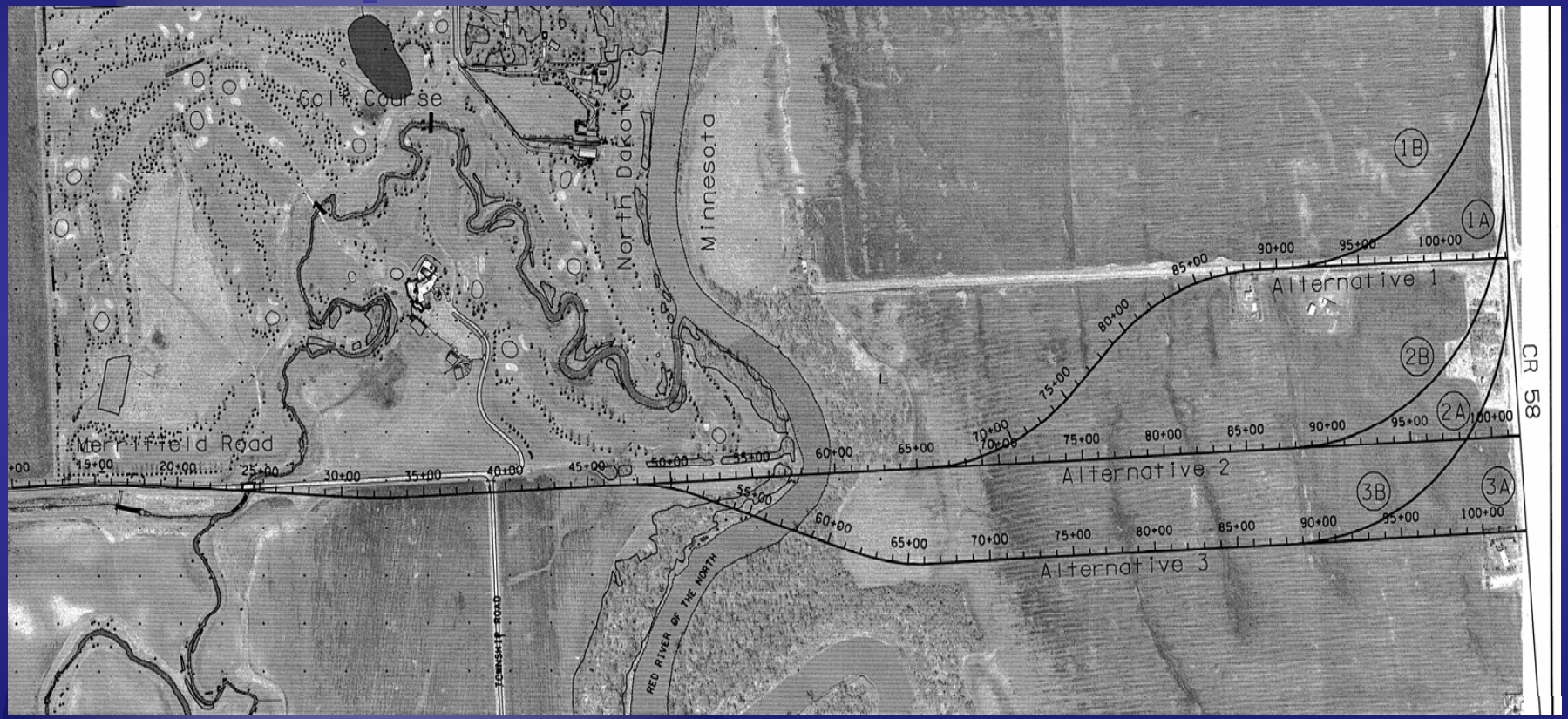
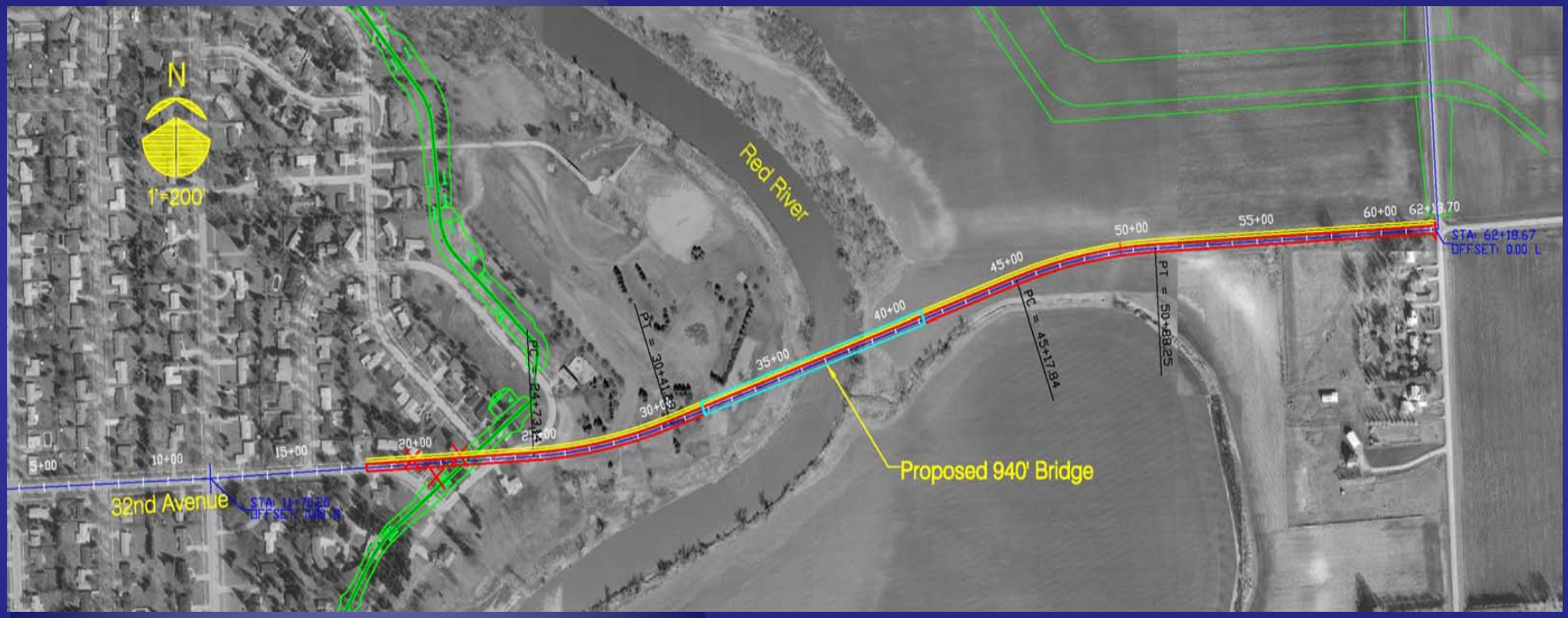
Alternative 1K: Merrifield Road Red River Crossing



Alternative 1L: 32nd Avenue Red River Crossing (Option 1)



URS TRANSPORTATION

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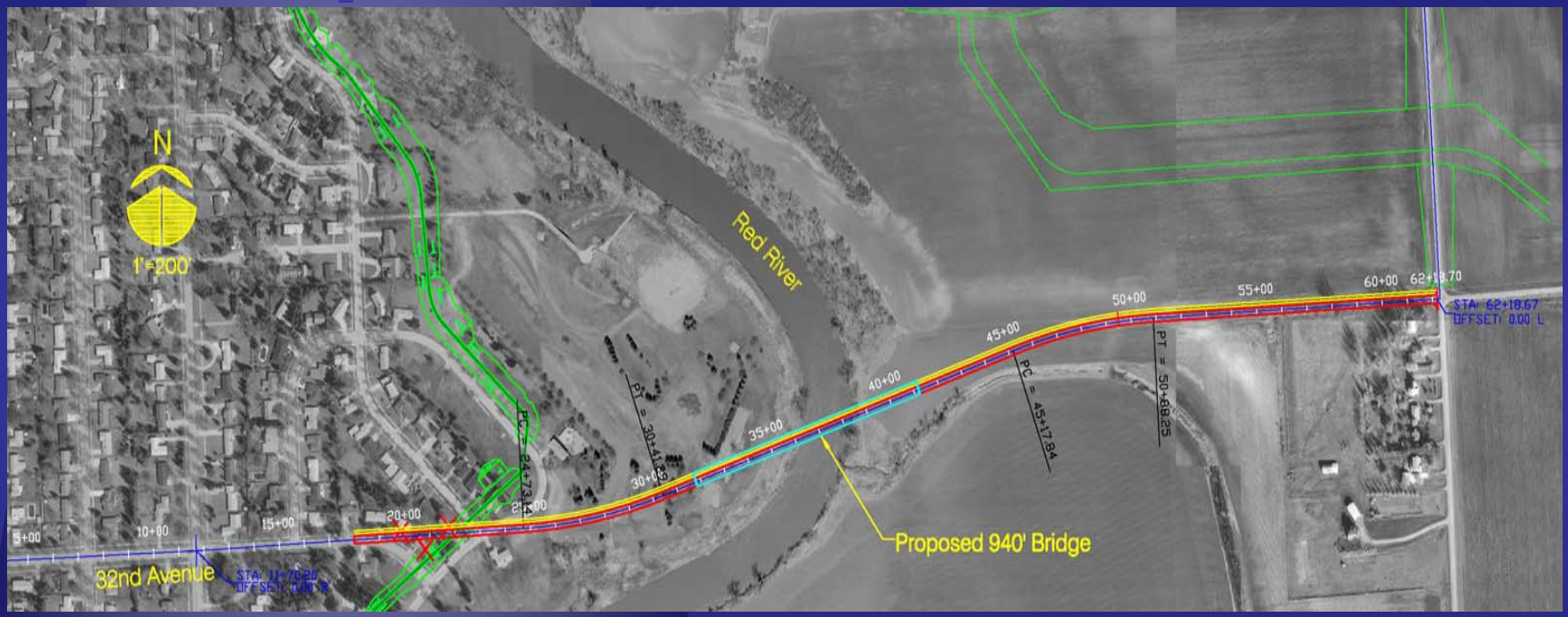
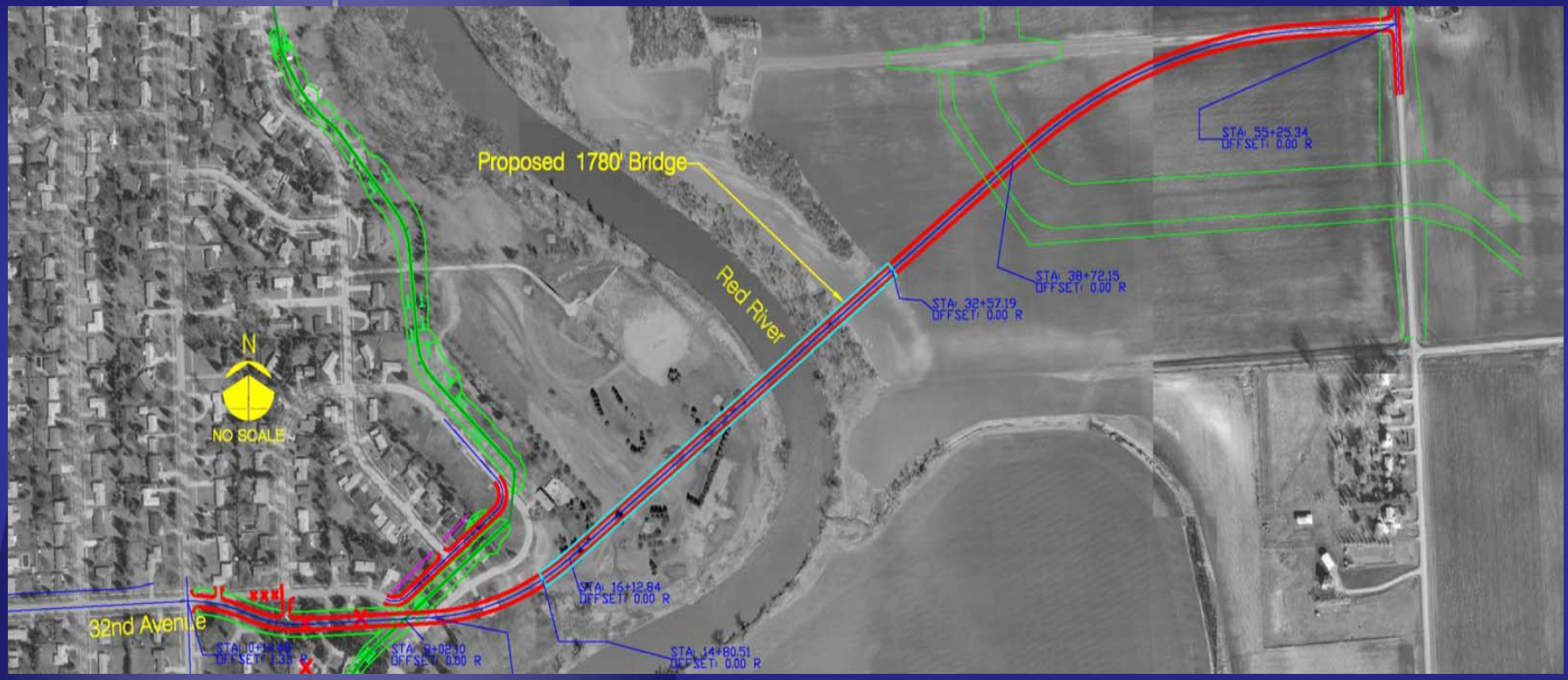
Alternative 1L: 32nd Avenue Red River Crossing (Option 2)

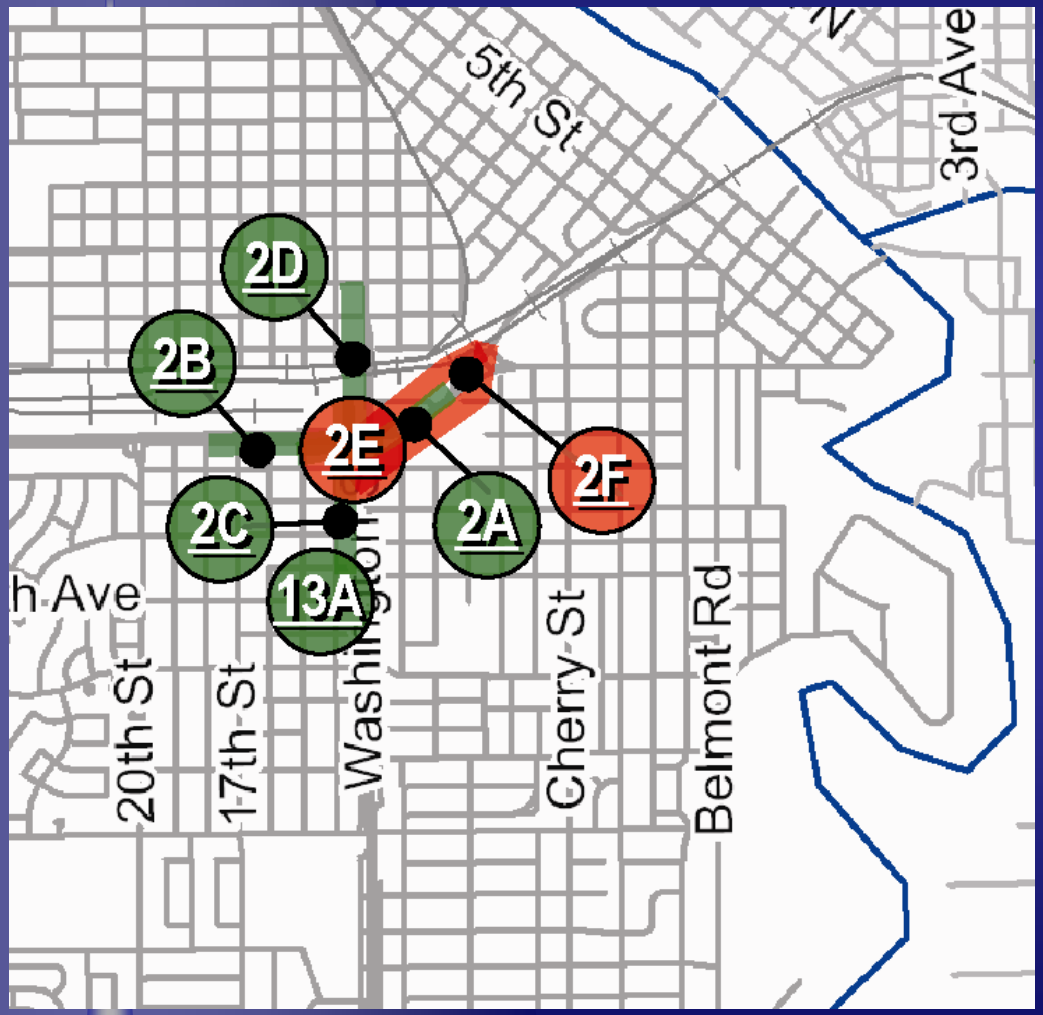


Alternative 1L: 32nd Avenue Red River Crossing (Option 3)



DeMers - Washington Congestion

Range of Retained Improvement Concepts



Washington St – DeMers Ave Congestion Corridor Widening Improvements (At Grade)

Issue	Alternative ID	Improvement Description	Social					Engineering					Environmental				Draft Total Score
			Local Public Support for Project	Multi-Modal Support	Consistency with Local / Regional Plans	Connectivity / Continuity	Consistency with Economic Development Activities	Safety	Congestion Relief	Security	Cost	Operations and Maintenance	VMT / VHT / Trip Generation	Air Quality	Built / Natural Environment Impacts	Economic Impact	
Washington-DeMers Congestion Relief																	
TSM Projects																	
	2 A	Washington / DeMers: Add eastbound through lane	6	0	4	2	2	4	4	2	2	2	0	2	2	2	34
	2 B	Washington / DeMers: Add 3rd lane for eastbound and westbound approaches	4	0	2	2	2	4	4	2	2	2	0	2	2	2	30
	2 C	Washington / DeMers: Add 3rd lane for southbound traffic	2	2	2	2	2	4	4	2	2	2	0	2	0	2	28
	2 D	Washington / DeMers: Add 3rd lane for northbound traffic	2	2	2	2	2	4	4	2	2	2	0	2	0	2	28
		TSM Package Average (3 Through Lanes on All Approaches)															30

Issue	Alternative ID	Improvement Description	Draft Total Score
Washington-DeMers Congestion Relief			
TSM Projects			
	2 A	Washington / DeMers: Add eastbound through lane	34
	2 B	Washington / DeMers: Add 3rd lane for eastbound and westbound approaches	30
	2 C	Washington / DeMers: Add 3rd lane for southbound traffic	28
	2 D	Washington / DeMers: Add 3rd lane for northbound traffic	28
		TSM Package Average (3 Through Lanes on All Approaches)	30

URS TRANSPORTATION

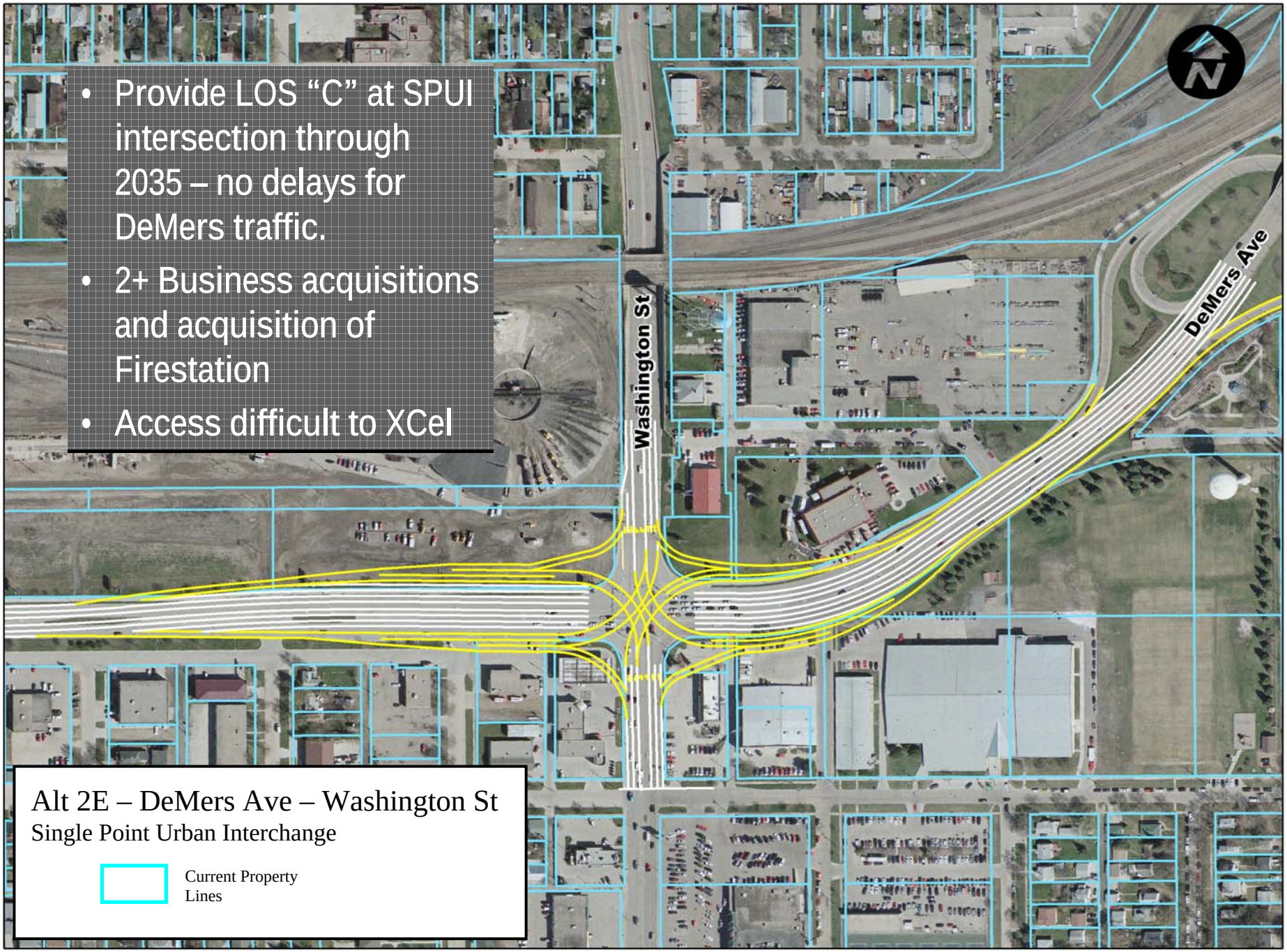
THE FORKS Long Range Transportation Plan

Washington St
DeMers Ave
N
Alts 2A, 2B, 2C and 2D –
DeMers Ave – Washington St
Add Third through Lane
Proposed
Lane / Movement
Current Property
Lines
Added Lanes
• At-Grade Improvements Provide LOS "D" through 2035.
• 3 Business acquisitions and significant impacts to operations at Firestation

Washington St – DeMers Ave Congestion Interchange Alternatives

Issue	Alternative ID	Improvement Description	Social					Engineering					Environmental				Draft Total Score
			Local Public Support for Project	Multi-Modal Support	Consistency with Local / Regional Plans	Connectivity / Continuity	Consistency with Economic Development Activities	Safety	Congestion Relief	Security	Cost	Operations and Maintenance	VMT / VHT / Trip Generation	Air Quality	Built / Natural Environment Impacts	Economic Impact	
Washington-DeMers Congestion Relief																	
Expansion Projects																	
	2 E	Washington / DeMers: Reconstruct as a single-point urban interchange	2	0	2	2	2	4	6	2	2	0	2	4	0	2	30
	2 F	Washington / DeMers-4th Ave S: Reconstruct as a split-diamond interchange	2	0	2	2	2	4	6	2	2	0	2	4	0	2	30

Issue	Alternative ID	Improvement Description	Draft Total Score
Washington-DeMers Congestion Relief			
Expansion Projects			
	2 E	Washington / DeMers: Reconstruct as a single-point urban interchange	30
	2 F	Washington / DeMers-4th Ave S: Reconstruct as a split-diamond interchange	30

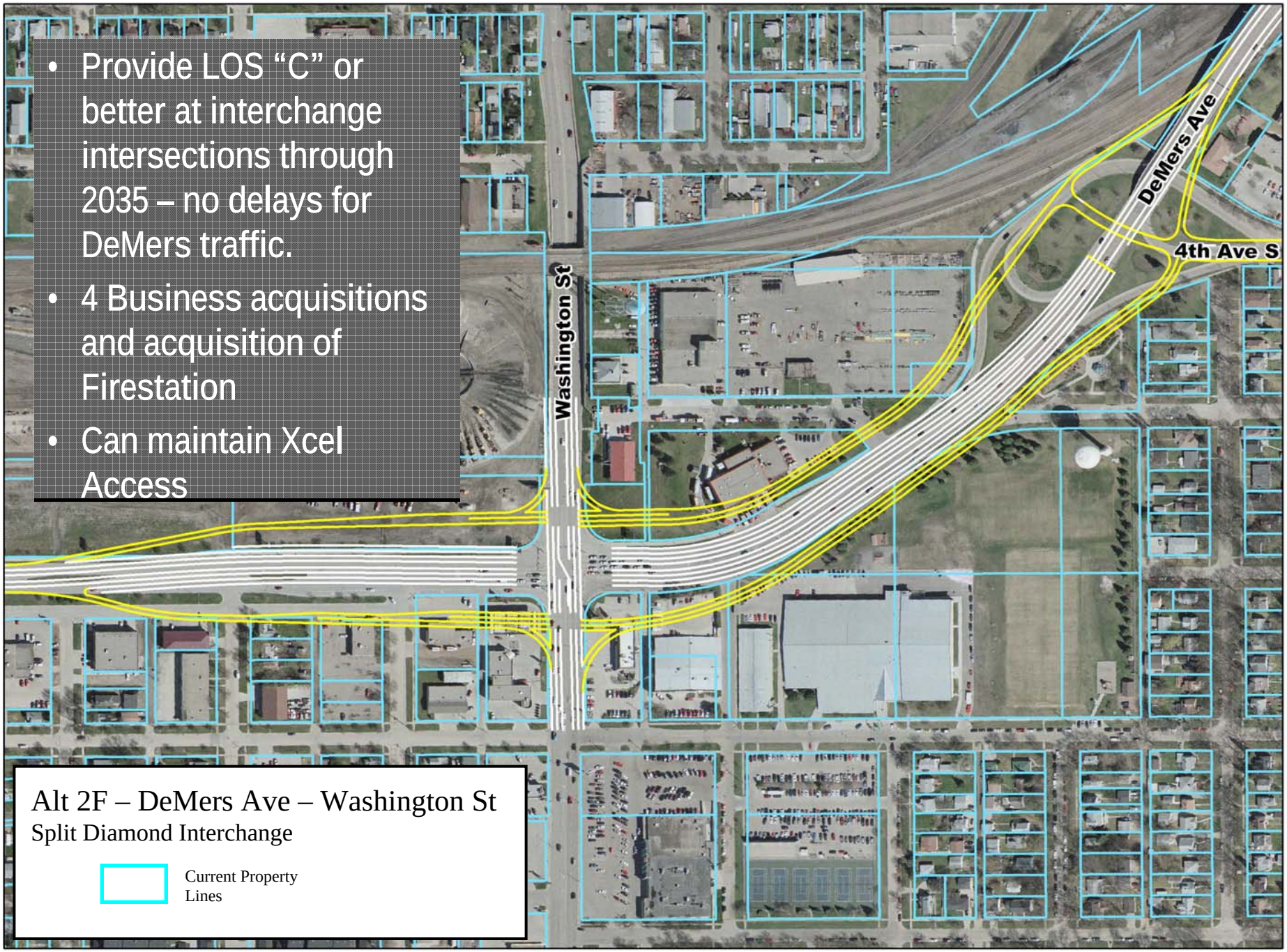


- Provide LOS “C” at SPUI intersection through 2035 – no delays for DeMers traffic.
- 2+ Business acquisitions and acquisition of Firestation
- Access difficult to XCel

Alt 2E – DeMers Ave – Washington St

Single Point Urban Interchange

Current Property Lines



- Provide LOS “C” or better at interchange intersections through 2035 – no delays for DeMers traffic.
- 4 Business acquisitions and acquisition of Firestation
- Can maintain Xcel Access

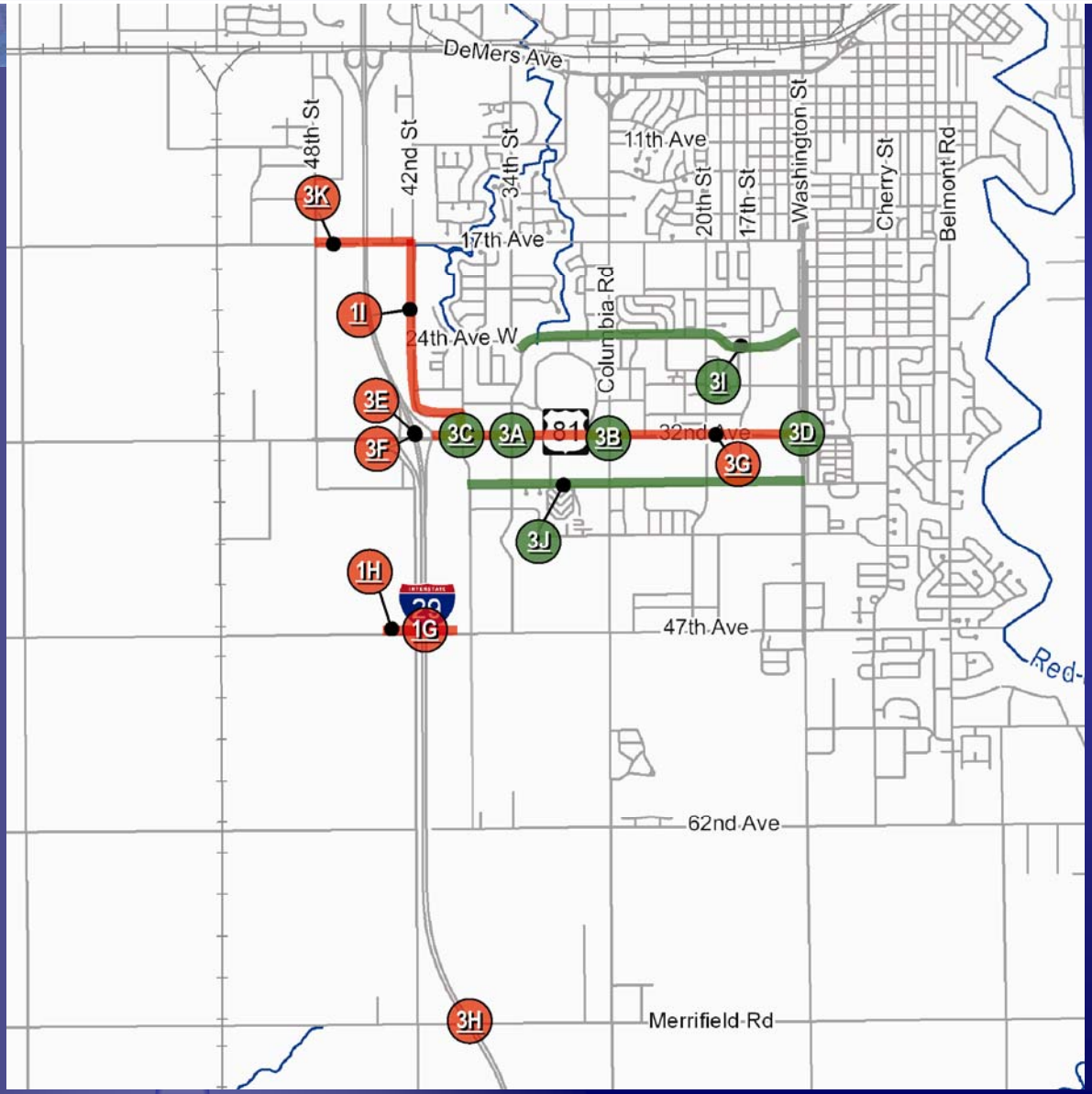
Alt 2F – DeMers Ave – Washington St

Split Diamond Interchange

Current Property Lines

32nd Ave S Congestion

Range of Retained Improvement Concepts



32nd Ave S Congestion
TSM Improvements in Corridor

Issue	Alternative ID	Improvement Description	Social					Engineering					Environmental				Draft Total Score
			Local Public Support for Project	Multi-Modal Support	Consistency with Local / Regional Plans	Connectivity / Continuity	Consistency with Economic Development Activities	Safety	Congestion Relief	Security	Cost	Operations and Maintenance	VMT / VHT / Trip Generation	Air Quality	Built / Natural Environment Impacts	Economic Impact	
32nd Avenue Congestion Relief																	
TSM Projects																	
	3 A	32nd Ave / 34th St: Add dual left-turn lanes for WB approach	6	0	2	2	2	6	4	2	6	2	0	2	6	2	42
	3 B	32nd Ave / Columbia Rd: Add dual left-turn lanes for NB and WB approaches	6	0	2	2	2	4	4	2	6	2	2	2	6	2	42
	3 C	32nd Ave / 38th St: Add dual left-turn lanes for NB and SB approaches	6	0	2	2	2	4	4	2	6	2	0	2	6	2	40
	3 D	32nd Ave / Washington St: Add eastbound and westbound through lanes	4	2	2	2	2	4	2	2	4	2	0	2	2	2	32
		TSM Package Average															39

Issue	Alternative ID	Improvement Description	Draft Total Score
32nd Avenue Congestion Relief			
TSM Projects			
	3 A	32nd Ave / 34th St: Add dual left-turn lanes for WB approach	42
	3 B	32nd Ave / Columbia Rd: Add dual left-turn lanes for NB and WB approaches	42
	3 C	32nd Ave / 38th St: Add dual left-turn lanes for NB and SB approaches	40
	3 D	32nd Ave / Washington St: Add eastbound and westbound through lanes	32
		TSM Package Average	39

URS TRANSPORTATION

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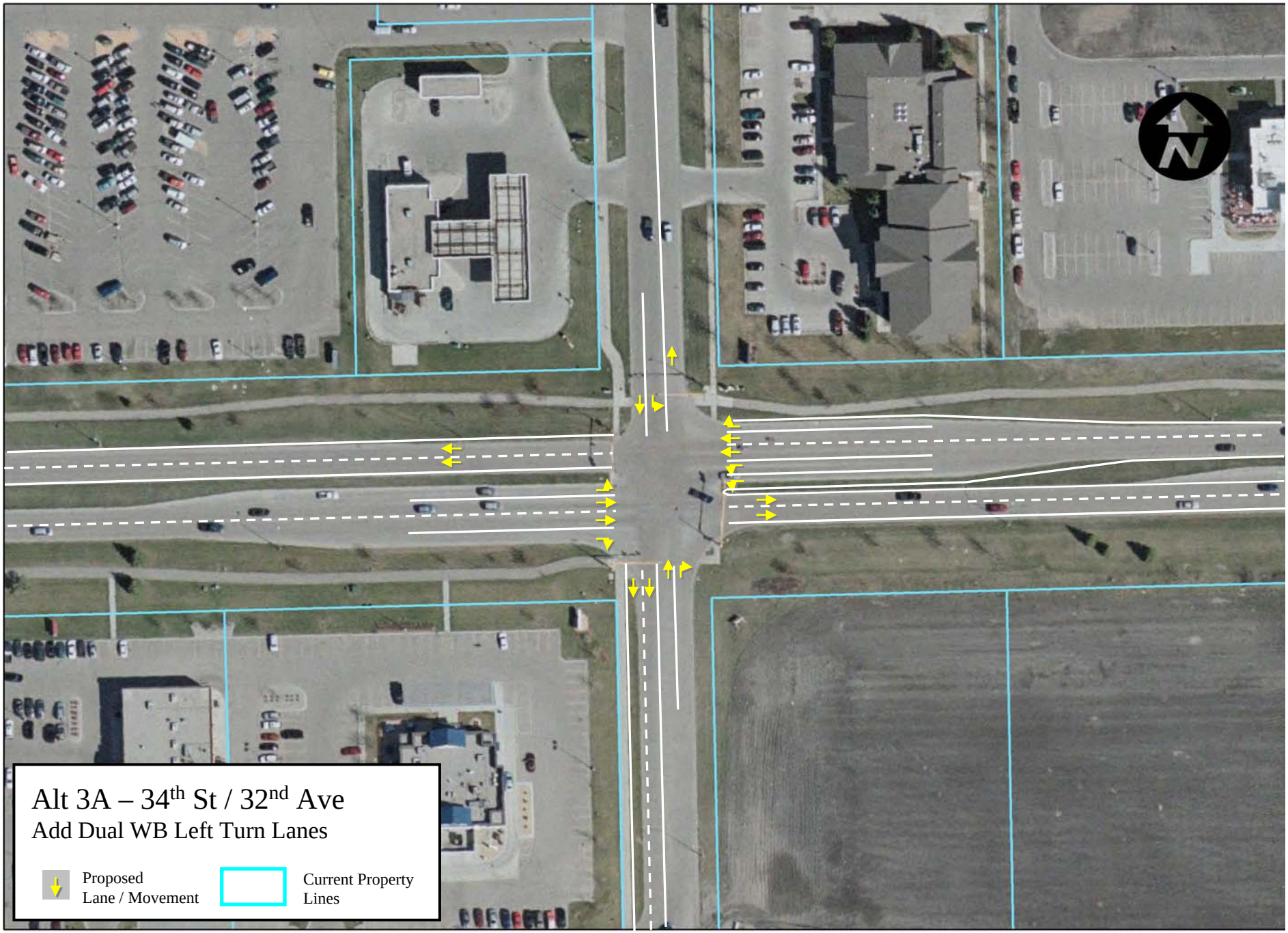
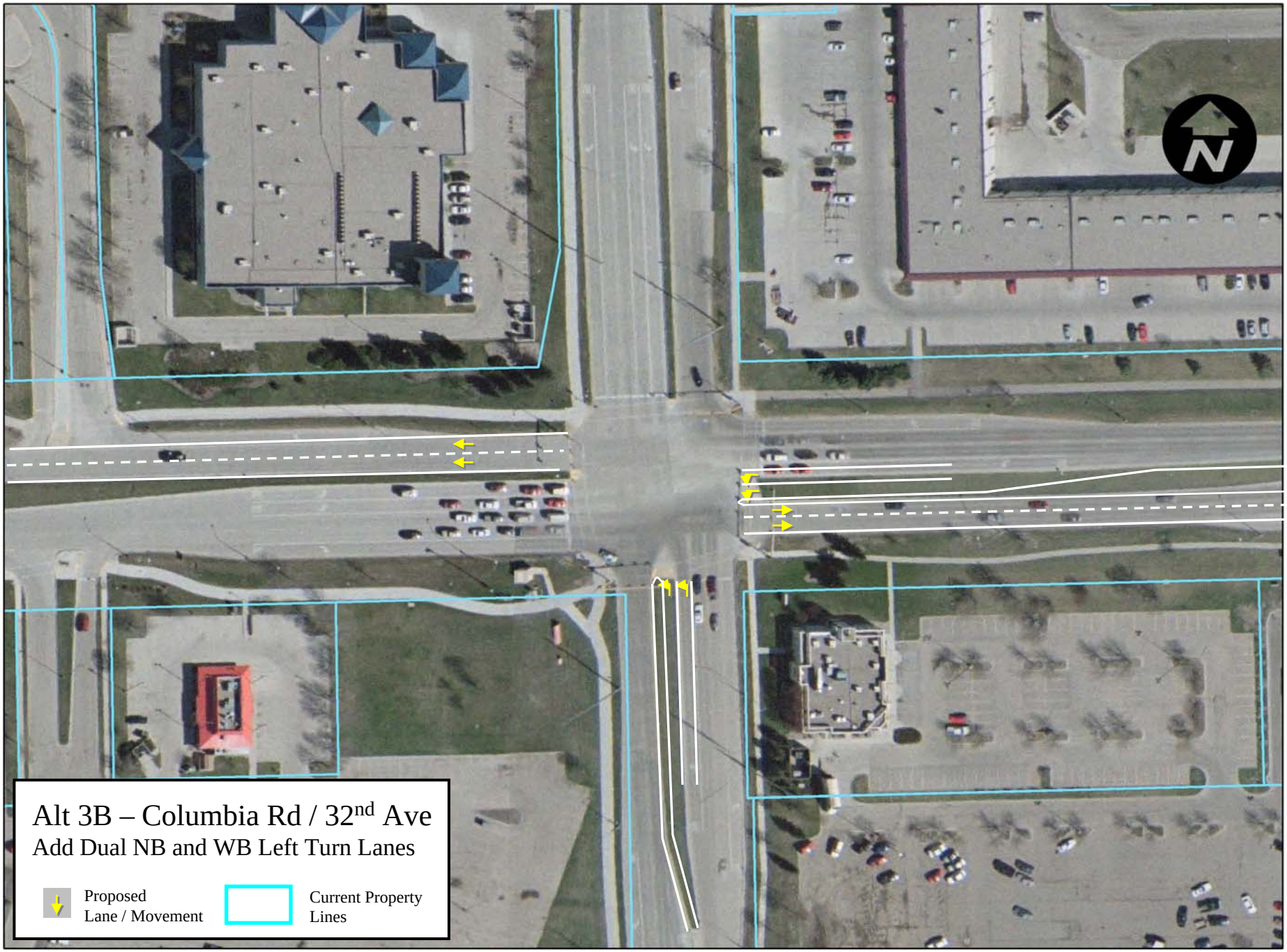
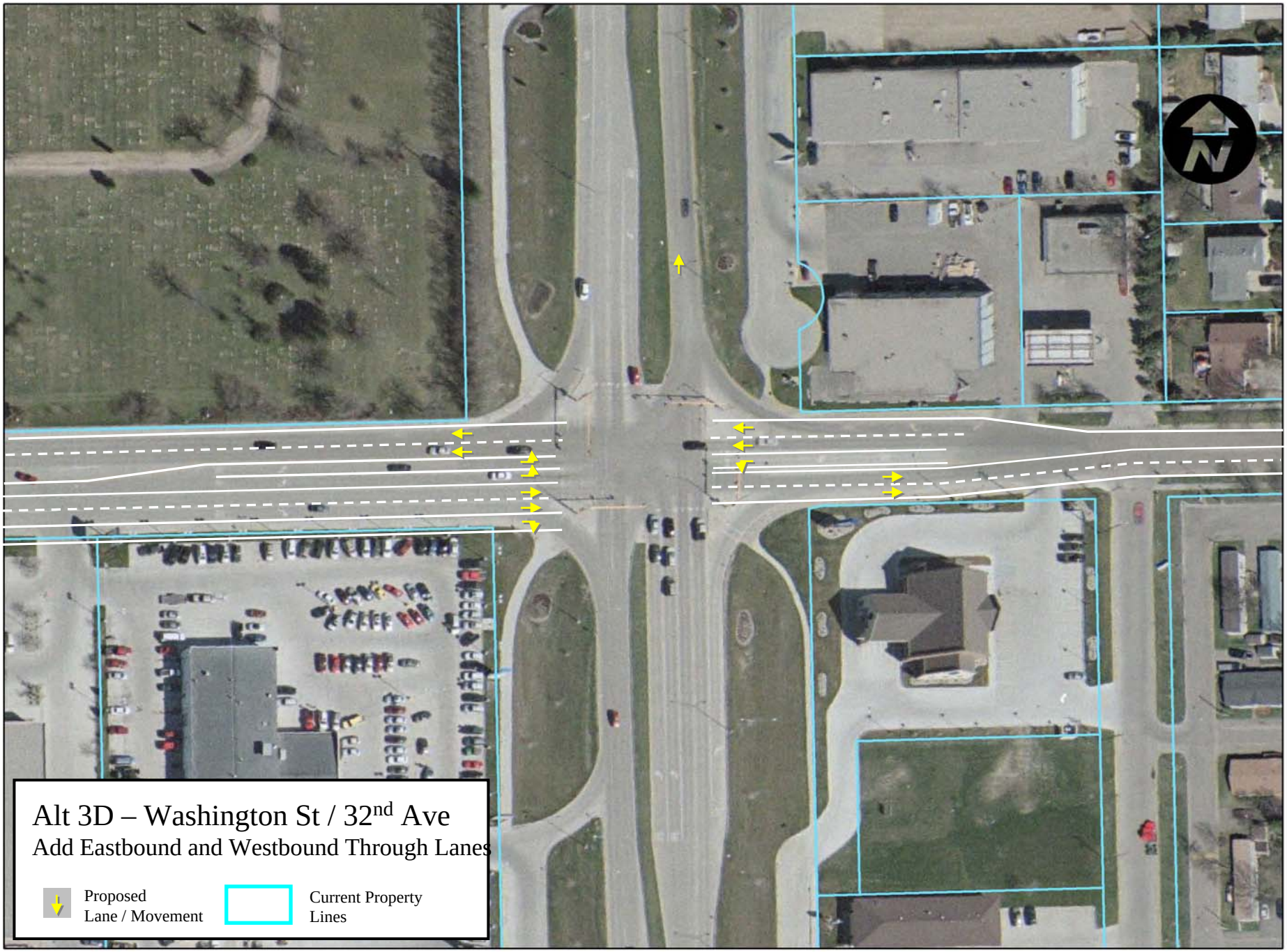

Alt 3A – 34th St / 32nd Ave
Add Dual WB Left Turn Lanes
Proposed
Lane / Movement
Current Property
Lines
N


Alt 3B – Columbia Rd / 32nd Ave
Add Dual NB and WB Left Turn Lanes
Proposed
Lane / Movement
Current Property
Lines
N

Alt 3C – 32nd Ave / 38th St
Add Dual NB and SB Left Turn Lanes
Proposed Lane / Movement
Current Property Lines


Alt 3D – Washington St / 32nd Ave
Add Eastbound and Westbound Through Lanes
Proposed
Lane / Movement
Current Property
Lines

32nd Ave S Congestion Expansion / Improvements in Adjacent Corridors

Issue	Alternative ID	Improvement Description	Social					Engineering					Environmental				Draft Total Score
			Local Public Support for Project	Multi-Modal Support	Consistency with Local / Regional Plans	Connectivity / Continuity	Consistency with Economic Development Activities	Safety	Congestion Relief	Security	Cost	Operations and Maintenance	VMT / VHT / Trip Generation	Air Quality	Built / Natural Environment Impacts	Economic Impact	
32nd Avenue Congestion Relief																	
Expansion Projects																	
	3 G	32nd Ave, I-29 to Washington St: Widen to 7-lanes	6	2	4	2	2	0	4	2	2	2	2	2	4	2	36
Adjacent Corridors																	
	3 K	17th Ave South overpass of I-29	6	4	4	4	6	2	4	4	2	0	4	4	6	6	56
	3 H	Merrifield Rd / I-29 Interchange	6	0	4	6	6	2	4	4	2	0	2	2	6	4	48
	3 J	Widen 36th Ave S to 3-Lanes, extend east to Washington St and west to 38th St	6	6	2	4	2	2	4	2	4	0	0	2	6	2	42
	3 E	I-29 / 32nd Ave Interchange: Add loop ramps, relocate the NB on-ramp	6	0	4	2	2	2	2	2	2	0	0	2	6	2	32
	3 I	Restripe 24th Ave S as 3-Lane Roadway, Columbia to Washington	4	0	2	2	2	2	4	2	6	2	0	2	4	0	32
	3 F	I-29 / 32nd Ave interchange: Add loop ramps, NB on-ramp relocated to 42nd St	4	0	2	2	2	2	2	2	2	0	0	2	6	2	28

Issue	Alternative ID	Improvement Description	Draft Total Score
32nd Avenue Congestion Relief			
Expansion Projects			
	3 G	32nd Ave, I-29 to Washington St: Widen to 7-lanes	36
Adjacent Corridors			
	3 K	17th Ave South overpass of I-29	56
	3 H	Merrifield Rd / I-29 Interchange	48
	3 J	Widen 36th Ave S to 3-Lanes, extend east to Washington St and west to 38th St	42
	3 E	I-29 / 32nd Ave Interchange: Add loop ramps, relocate the NB on-ramp	32
	3 I	Restripe 24th Ave S as 3-Lane Roadway, Columbia to Washington	32
	3 F	I-29 / 32nd Ave interchange: Add loop ramps, NB on-ramp relocated to 42nd St	28

URS TRANSPORTATION

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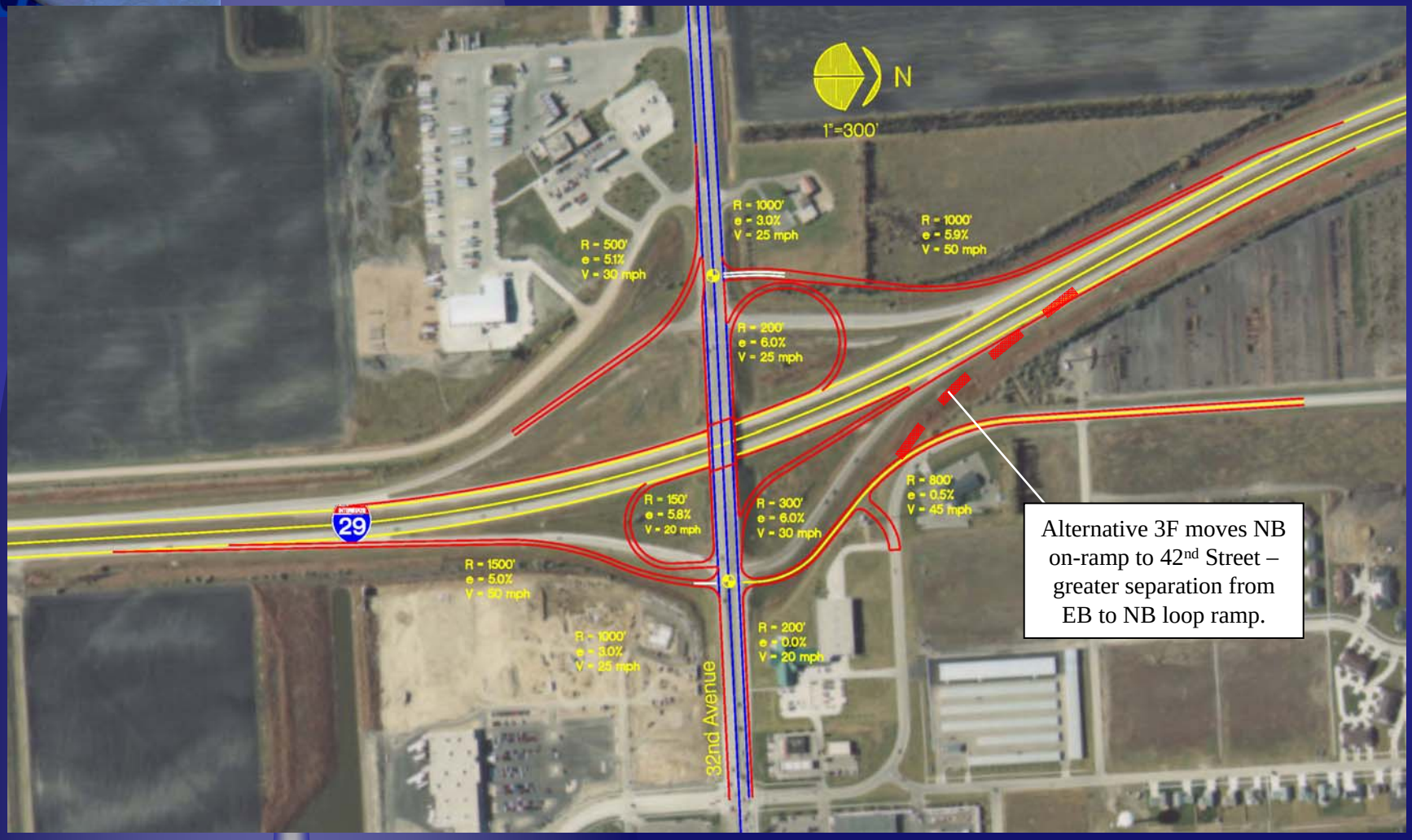
Alternative 3E: 32nd Ave S Interchange Reconfiguration



URS TRANSPORTATION

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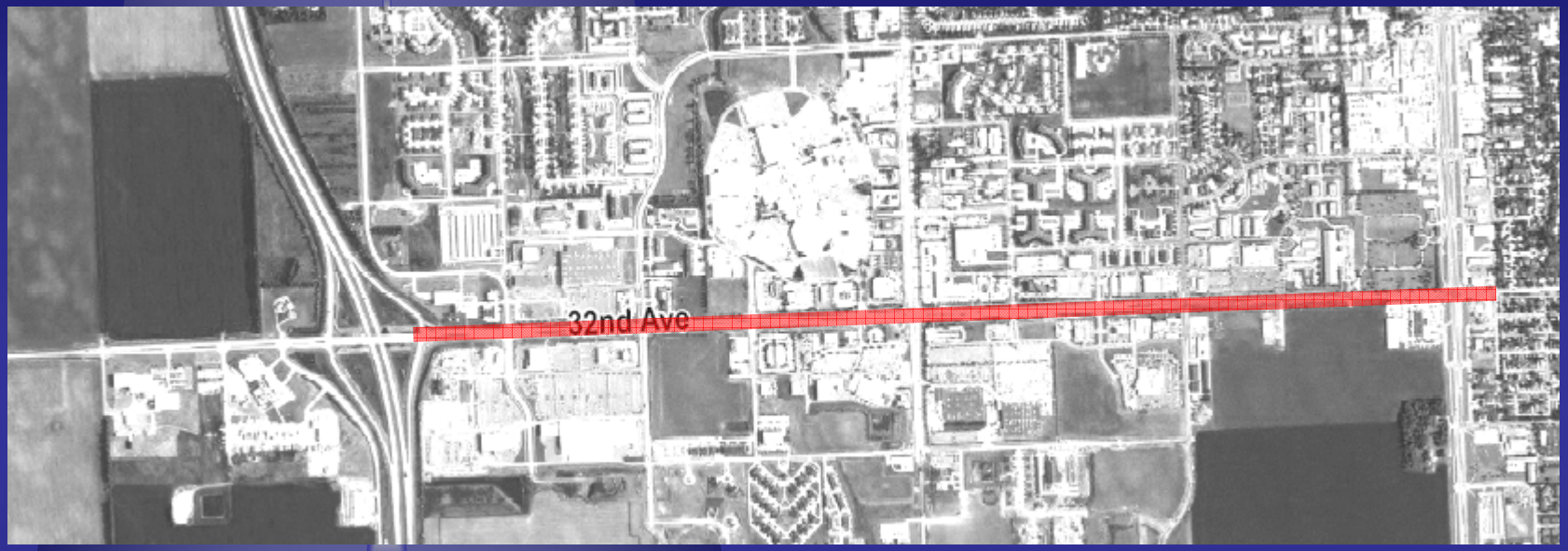
Alternative 3G: Widen 32nd Ave to 7 Lanes, I-29 to Washington St



- No R.O.W. impacts through most of corridor.
- Wider cross section requires all 32nd Ave left-turn movements to be protected only.
- Provides LOS "D" at 32nd Ave / Columbia Rd in 2035 PM peak (LOS "E" in No Build).

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Alternative 3H: Merrifield Rd / I-29 Interchange

- Would divert approximately 2,000 to 3,000 vpd from 32nd Ave west of Columbia Rd.
- Reduces delays along 32nd Ave.

URS TRANSPORTATION

THE FORKS Long Range Transportation Plan

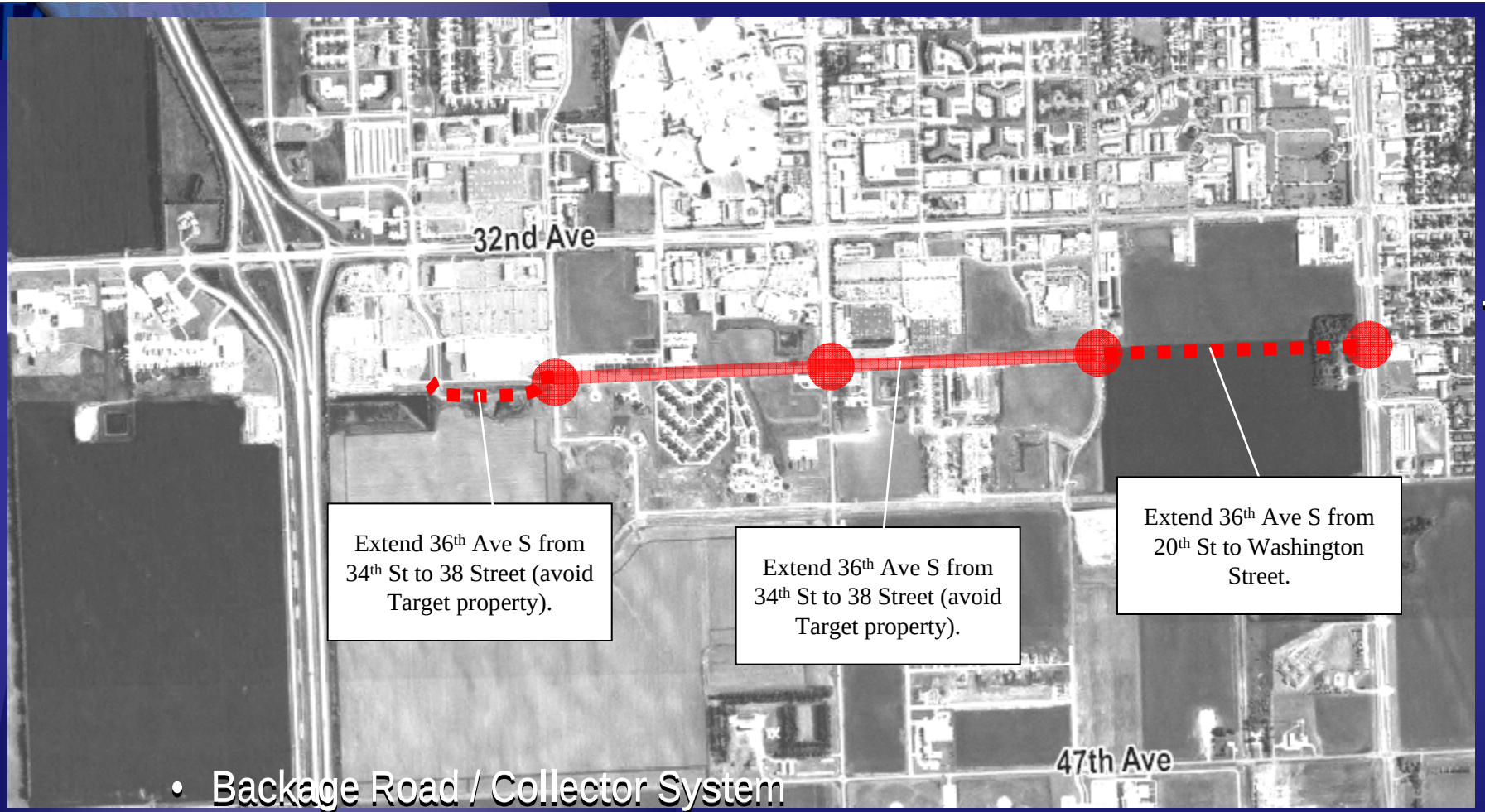
Alternative 3I: Restripe 24th Ave S as a 3-Lane

- Current pavement width is 44' - wide enough for 3-lanes and one lane of parking.
- Loss of on-street parking on one side of 24th Ave.

URS TRANSPORTATION

THE FORKS Long Range Transportation Plan

Alternative 3J: Widen 36th Ave S to 3-Lanes



- Backage Road / Collector System for Commercial Development.
- Diverts approximately 2,000 vpd from 32nd Ave S.

● - Future Signals

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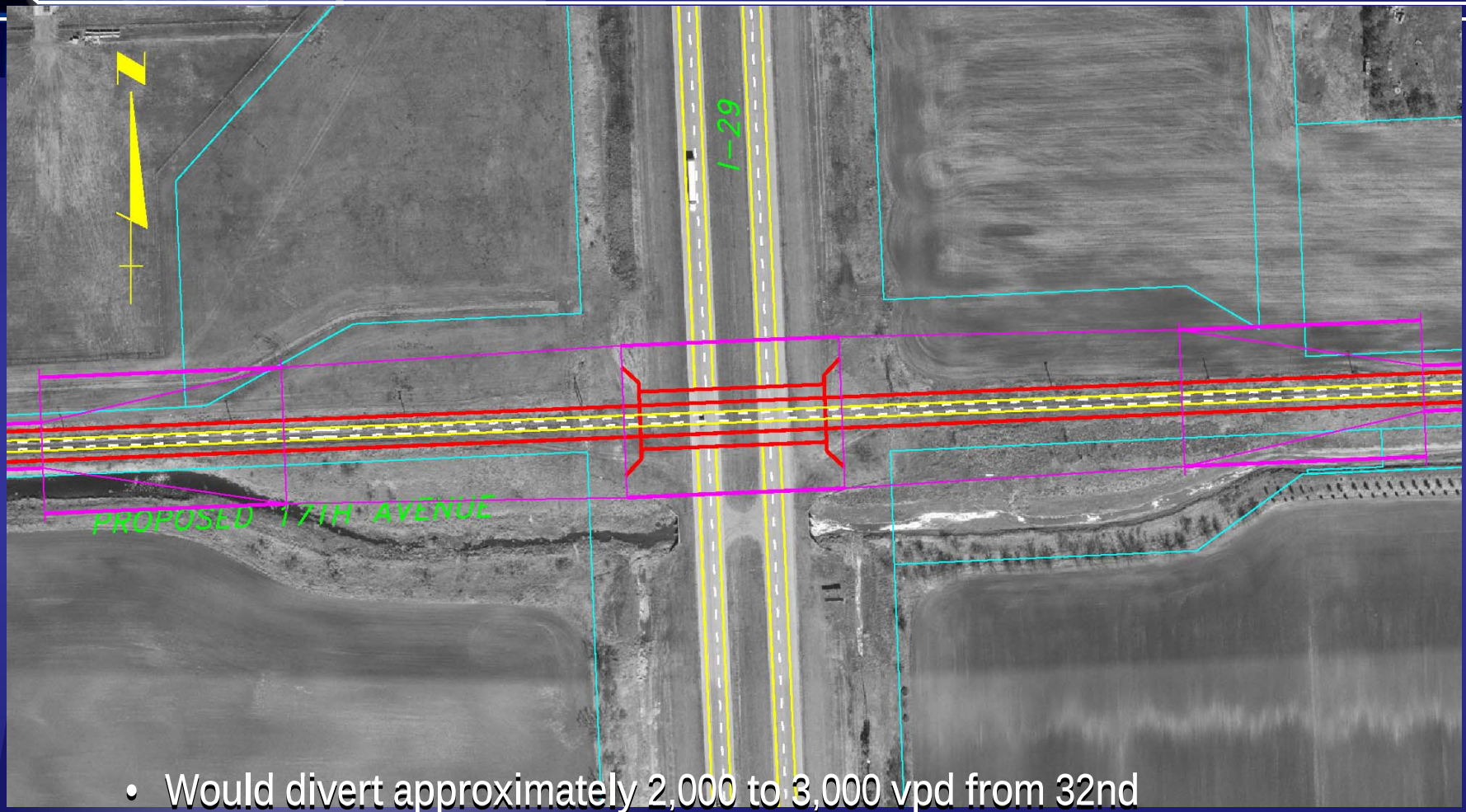
Alternative 3K: 17th Ave S Overpass of I-29



- Would divert approximately 2,000 to 3,000 vpd from 32nd Ave west of Columbia Rd.
- Reduces delays along 32nd Ave.

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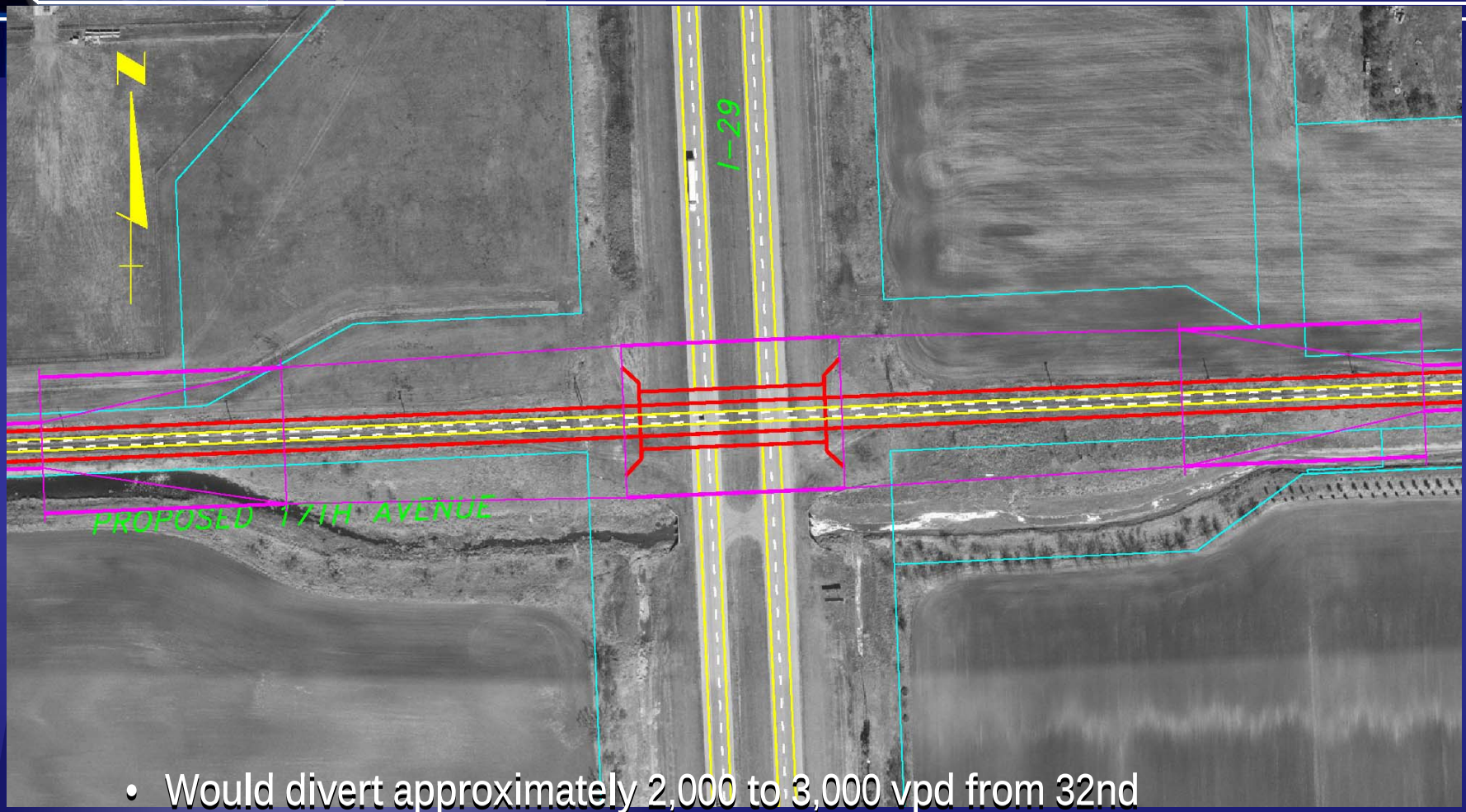
Alternative 3K: 17th Ave S Overpass of I-29



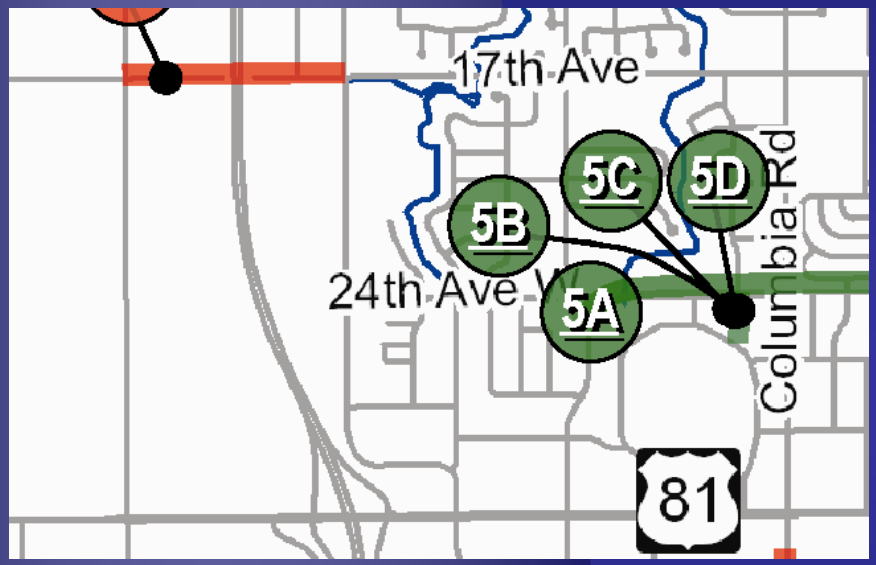
- Would divert approximately 2,000 to 3,000 vpd from 32nd Ave west of Columbia Rd.
- Reduces delays along 32nd Ave.

URS TRANSPORTATION

THE FORKS Long Range Transportation Plan

24th Ave S Safety and Congestion

Summary of Improvements



24th Ave Safety and Congestion

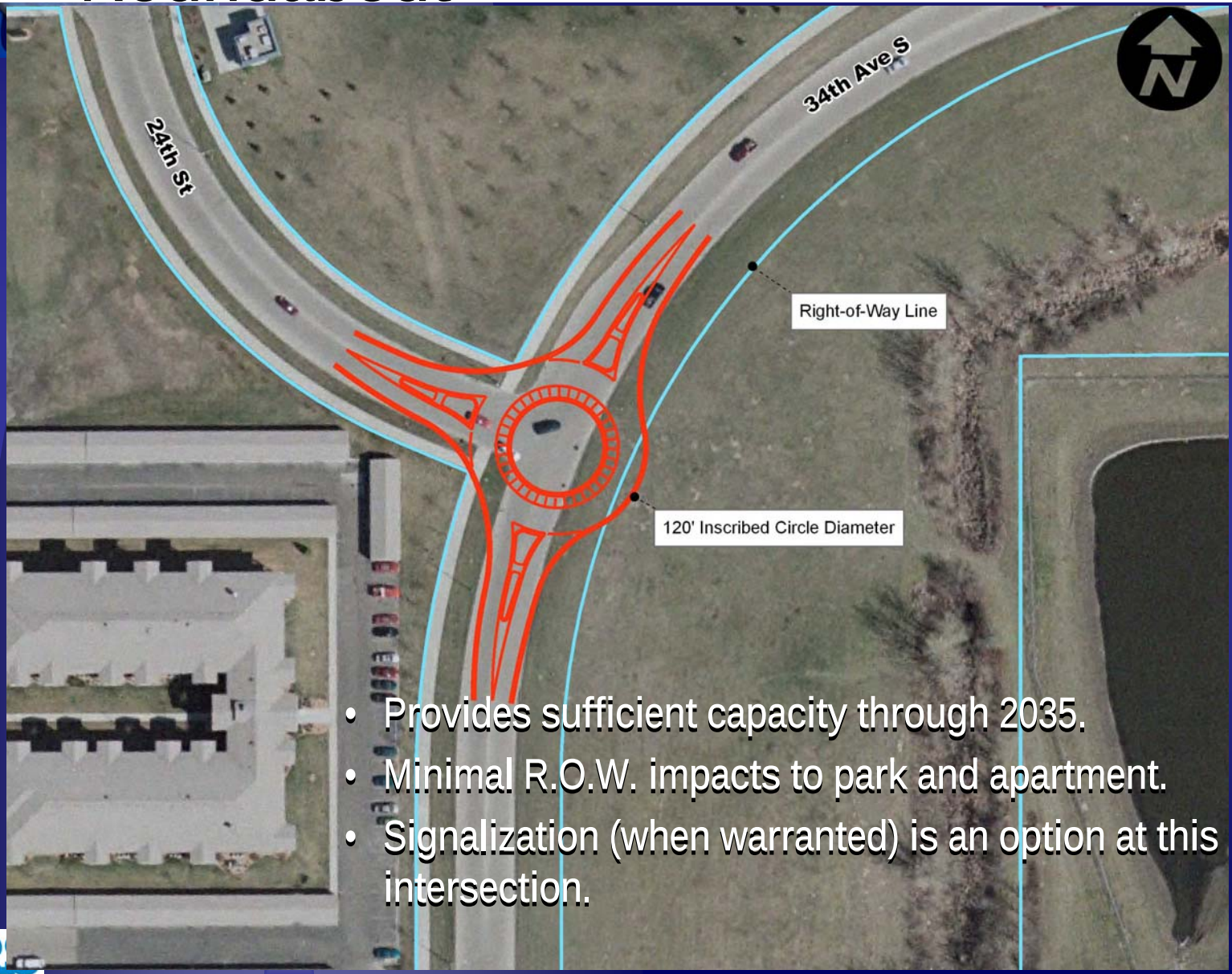
Issue	Alternative ID	Improvement Description	Social					Engineering					Environmental				Draft Total Score
			Local Public Support for Project	Multi-Modal Support	Consistency with Local / Regional Plans	Connectivity / Continuity	Consistency with Economic Development Activities	Safety	Congestion Relief	Security	Cost	Operations and Maintenance	VMT / VHT / Trip Generation	Air Quality	Built / Natural Environment Impacts	Economic Impact	
24th Avenue Safety and Congestion Relief																	
	5 D	29th St / 24th Ave: Signalize intersection	2	2	2	2	2	6	2	2	6	2	0	2	6	2	38
	5 C	29th St / 24th Ave: Remove south leg of intersection	2	2	2	2	2	6	2	2	6	4	0	2	4	2	38
	5 B	29th St / 24th Ave: Channelize NB 29th St to eliminate Left-Turns (3/4 access)	2	2	2	2	2	6	2	2	6	2	0	2	4	2	36
	5 A	24th Ave / 34th St: Reconstruct intersection as roundabout	4	2	2	2	2	2	2	2	6	2	0	2	4	2	34

Issue	Alternative ID	Improvement Description	Draft Total Score
24th Avenue Safety and Congestion Relief			
	5 D	29th St / 24th Ave: Signalize intersection	38
	5 C	29th St / 24th Ave: Remove south leg of intersection	38
	5 B	29th St / 24th Ave: Channelize NB 29th St to eliminate Left-Turns (3/4 access)	36
	5 A	24th Ave / 34th St: Reconstruct intersection as roundabout	34

URS TRANSPORTATION

THE FORKS Long Range Transportation Plan

Alternative 5A: 24th Ave S – 34th St Roundabout



- Provides sufficient capacity through 2035.
- Minimal R.O.W. impacts to park and apartment.
- Signalization (when warranted) is an option at this intersection.

Alternative 5B-5D: 24th Ave S – 29th St Safety

- Alt 5B: Channelize NB traffic to provide ¾ access
- Alt 5C: Remove south leg
- Alt 5D: Signalize intersection (warrants must be met)

URS TRANSPORTATION

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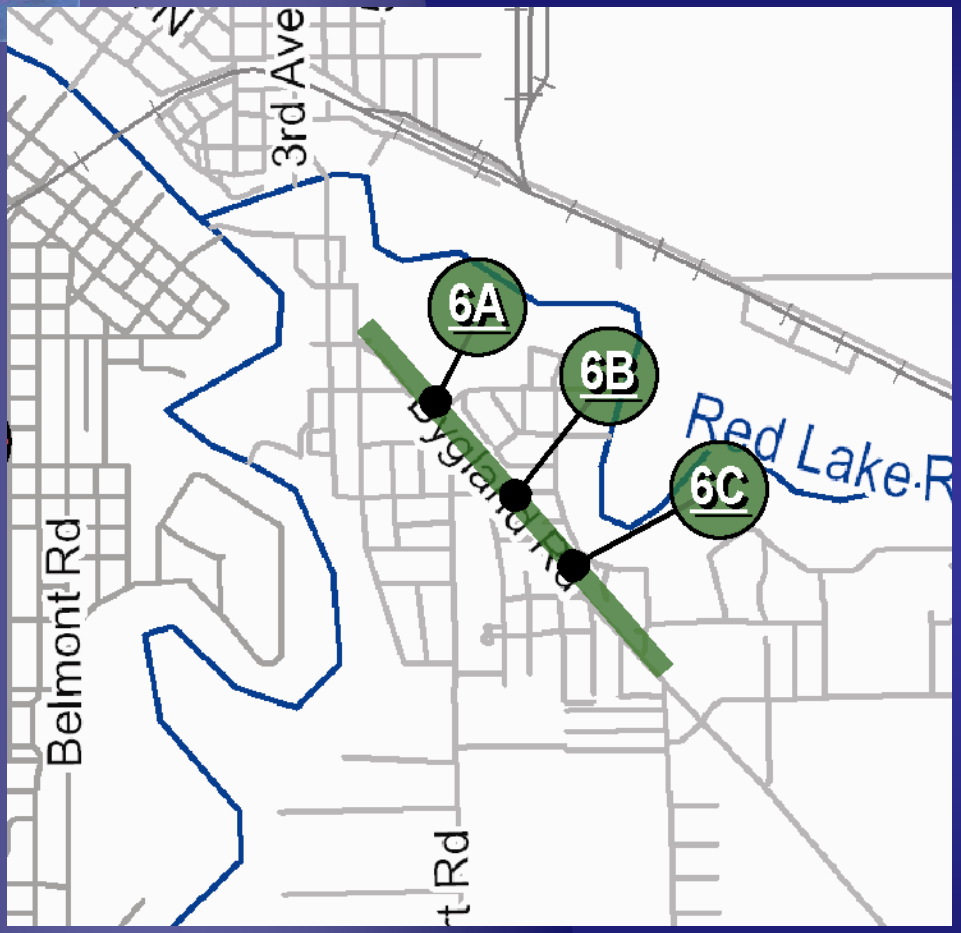
Bygland Rd Access and Congestion

Range of Retained Improvement Concepts



Bygland Road Access and Congestion

Issue	Alternative ID	Improvement Description	Social					Engineering					Environmental				Draft Total Score
			Local Public Support for Project	Multi-Modal Support	Consistency with Local / Regional Plans	Connectivity / Continuity	Consistency with Economic Development Activities	Safety	Congestion Relief	Security	Cost	Operations and Maintenance	VMT / VHT / Trip Generation	Air Quality	Built / Natural Environment Impacts	Economic Impact	
Bygland Road Congestion / Access																	
	6 B	Restripe Bygland Road as a 3-lane cross-section	6	2	2	2	2	2	2	2	6	2	0	2	6	2	38
	6 A	Add left-turn lanes at key Bygland Road intersections	6	2	2	2	2	2	2	2	6	2	0	2	6	2	38
	6 C	Consolidate minor street accesses along Bygland Road	2	2	2	0	2	2	2	2	6	2	0	2	4	2	30

Issue	Alternative ID	Improvement Description	Draft Total Score
Bygland Road Congestion / Access			
	6 B	Restripe Bygland Road as a 3-lane cross-section	38
	6 A	Add left-turn lanes at key Bygland Road intersections	38
	6 C	Consolidate minor street accesses along Bygland Road	30

URS TRANSPORTATION

THE FORKS Long Range Transportation Plan

Alternative 6A-6C: Bygland Rd Access / Congestion

- Alt 6A: Add left-turn lanes at key intersections
- Alt 6B: Restripe as 3-lane roadway
- Alt 6C: Consolidate / close minor street accesses

East Grand Forks North-South Continuity

URS TRANSPORTATION

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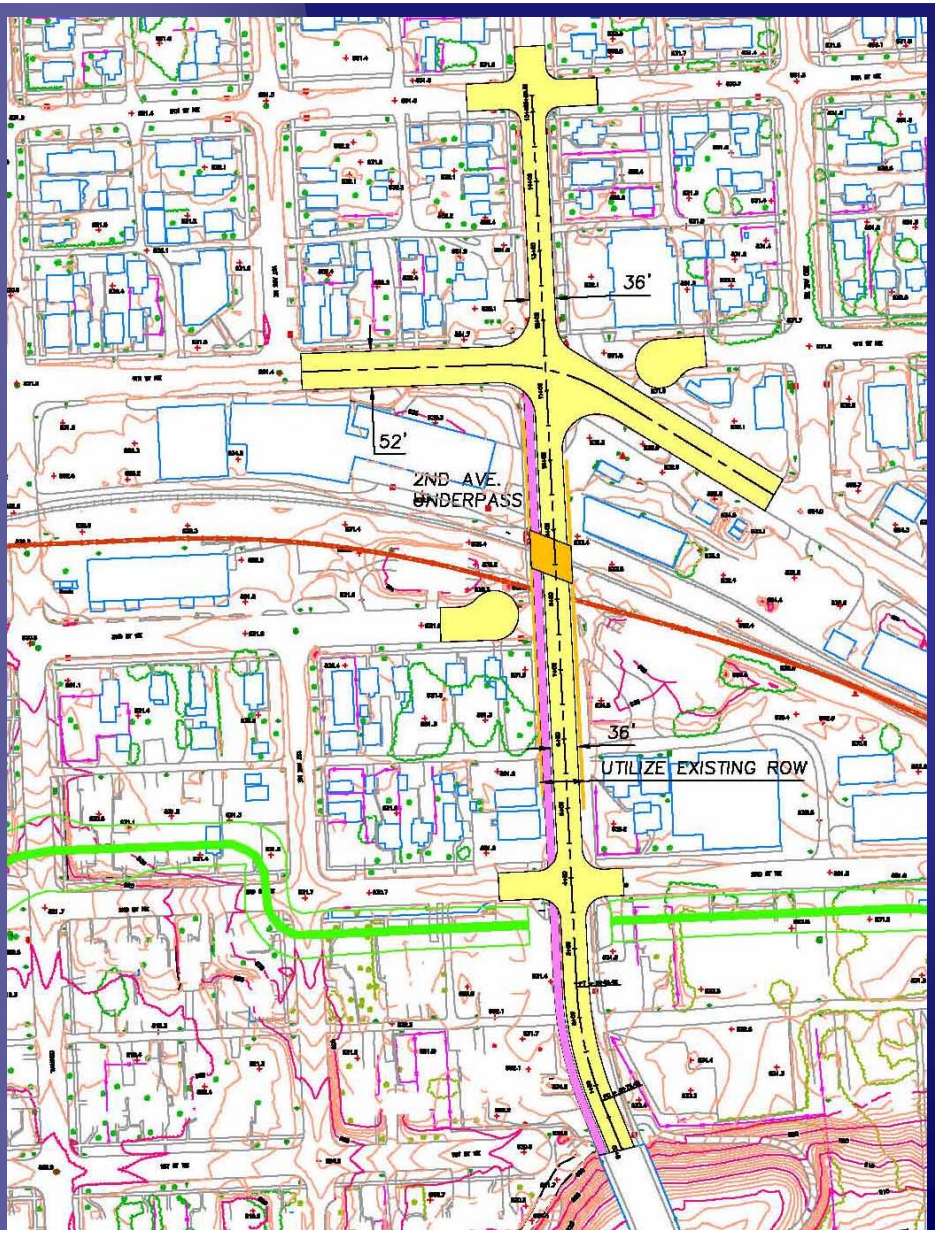
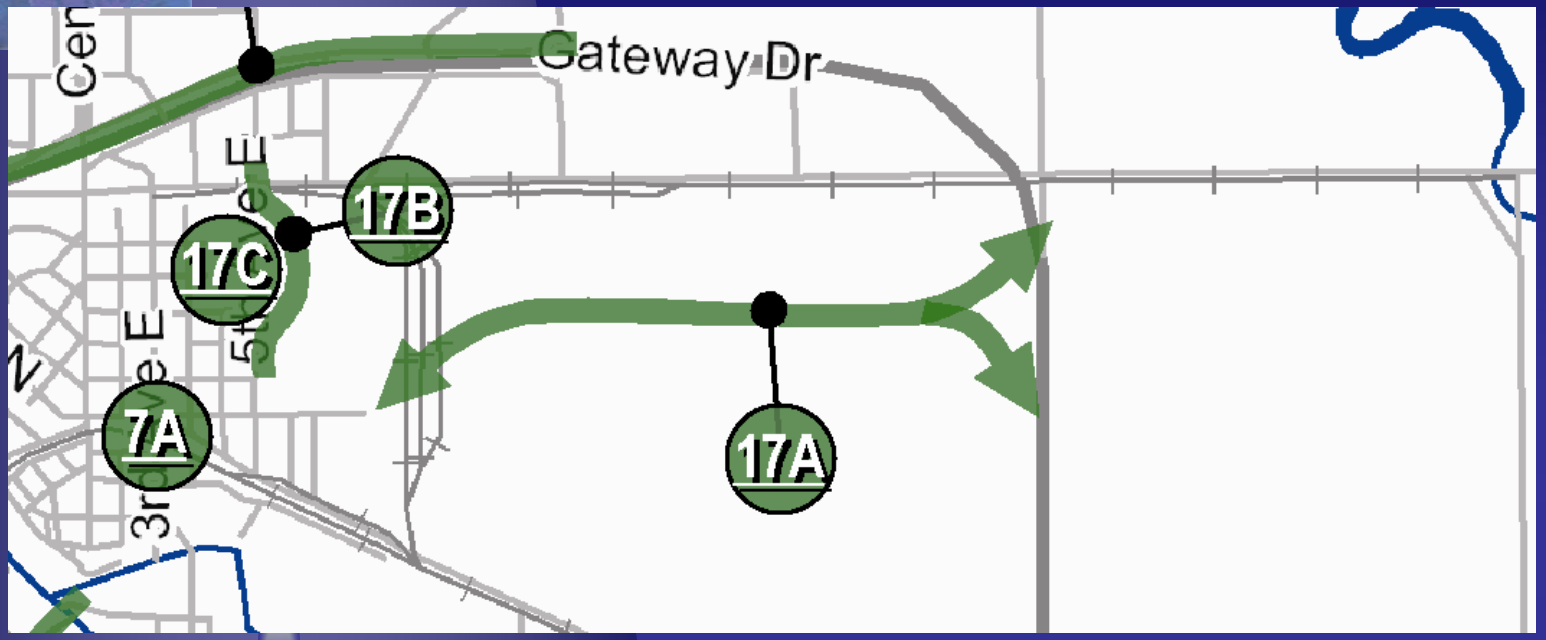
Central Spine / BNSF Grade Separation



East Grand Forks Beet / Potato Truck Traffic

Summary of Improvements



Truck Traffic Related to East Grand Forks Potato and Sugar Beet Plants

Issue	Alternative ID	Improvement Description	Social					Engineering					Environmental				Draft Total Score
			Local Public Support for Project	Multi-Modal Support	Consistency with Local / Regional Plans	Connectivity / Continuity	Consistency with Economic Development Activities	Safety	Congestion Relief	Security	Cost	Operations and Maintenance	VMT / VHT / Trip Generation	Air Quality	Built / Natural Environment Impacts	Economic Impact	
Truck Traffic Related to East Grand Forks Potato and Sugar Beet Plants																	
	17	A	Improve access to plants from Highway 2 (East of Plant).	6	0	2	4	2	2	0	2	6	2	0	2	6	0	34
	17	B	Alter 5th Ave NE to avoid crossing Strauss Park ball fields / parking lots	4	4	2	2	2	2	0	2	6	2	0	2	6	0	34
	17	C	Redevelop Strauss Park to place parking lots west of 5th Ave NE	2	4	2	2	2	2	0	2	6	2	0	2	4	0	30

Issue	Alternative ID		Improvement Description	Draft Total Score
Truck Traffic Related to East Grand Forks Potato and Sugar Beet Plants				
	17	A	Improve access to plants from Highway 2 (East of Plant).	34
	17	B	Alter 5th Ave NE to avoid crossing Strauss Park ball fields / parking lots	34
	17	C	Redevelop Strauss Park to place parking lots west of 5th Ave NE	30

URS TRANSPORTATION

THE FORKS Long Range Transportation Plan

Alternative 17A-17C: Beet / Potato Plant Truck Traffic

URS TRANSPORTATION

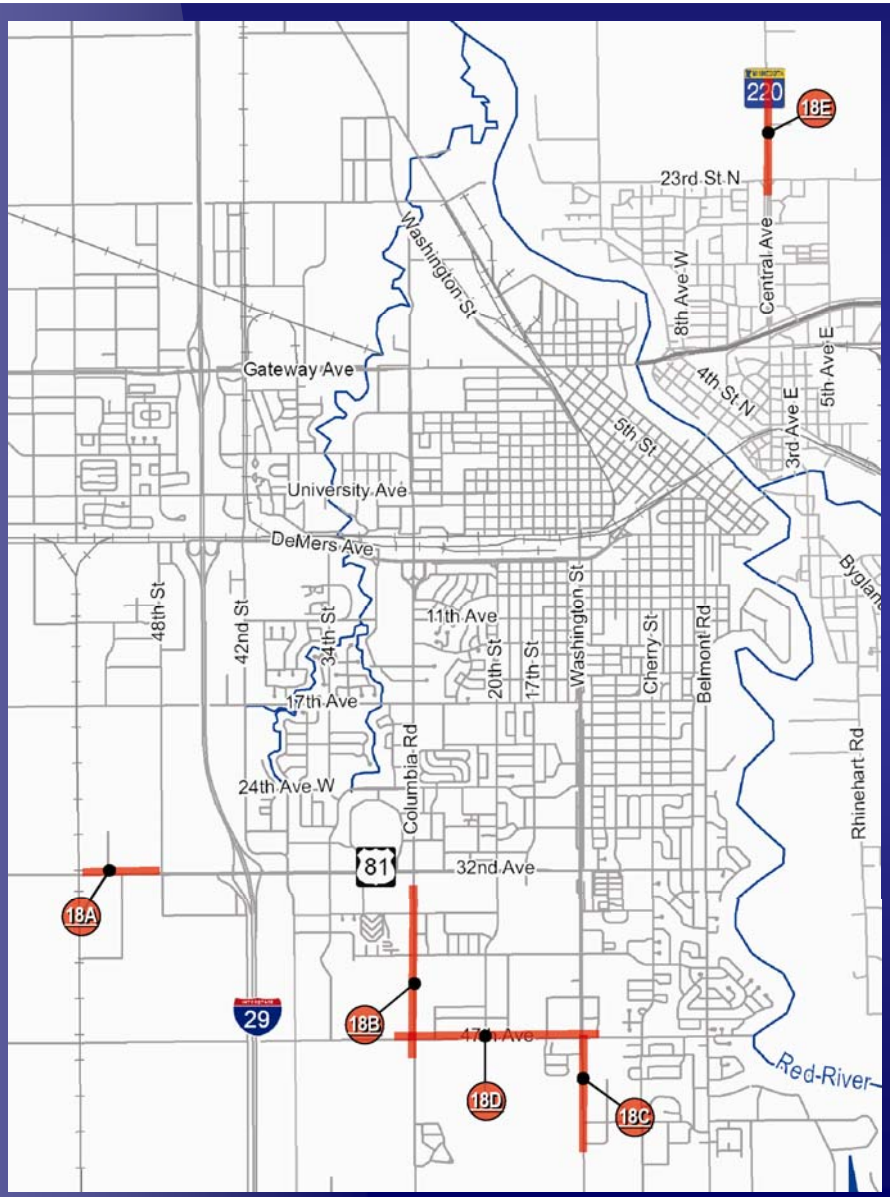
THE FORKS Long Range Transportation Plan

Future Congestion Along Current, Rural Two-Lane Roadways

URS TRANSPORTATION

THE FORKS Long Range Transportation Plan

Range of Retained Improvement Concepts



Future Congestion along Current Rural, Two-Lane Roadways

Issue	Alternative ID	Improvement Description	Social					Engineering					Environmental				Draft Total Score
			Local Public Support for Project	Multi-Modal Support	Consistency with Local / Regional Plans	Connectivity / Continuity	Consistency with Economic Development Activities	Safety	Congestion Relief	Security	Cost	Operations and Maintenance	VMT / VHT / Trip Generation	Air Quality	Built / Natural Environment Impacts	Economic Impact	
Future Congestion Along Current Rural, Two-Lane Roadways																	
	18 A	32nd Ave, 48th St to 55th St: Widen to 5-Lanes	6	6	4	2	6	2	4	2	2	2	0	2	6	2	46
	18 B	Columbia Rd, 32nd Ave S to 50th Ave S: Widen to 5-Lanes	6	6	4	2	6	2	4	2	2	2	0	2	6	2	46
	18 C	Washington St, 47th Ave to 55th Ave: Widen to 5-Lanes	6	6	4	2	6	2	4	2	2	2	0	2	6	2	46
	18 E	Central Ave: Widen to 4-lane divided north to 23rd St, 3-lanes from 23rd St to dike	6	6	4	2	4	2	4	2	2	2	0	2	6	2	44
	18 D	47th Ave South between Columbia Rd and Washington St: Widen to 3-Lanes	6	6	2	2	2	2	4	2	2	2	0	2	6	2	40

Issue	Alternative ID	Improvement Description	Draft Total Score
Future Congestion Along Current Rural, Two-Lane Roadways			
	18 A	32nd Ave, 48th St to 55th St: Widen to 5-Lanes	46
	18 B	Columbia Rd, 32nd Ave S to 50th Ave S: Widen to 5-Lanes	46
	18 C	Washington St, 47th Ave to 55th Ave: Widen to 5-Lanes	46
	18 E	Central Ave: Widen to 4-lane divided north to 23rd St, 3-lanes from 23rd St to dike	44
	18 D	47th Ave South between Columbia Rd and Washington St: Widen to 3-Lanes	40

URS TRANSPORTATION

THE FORKS Long Range Transportation Plan

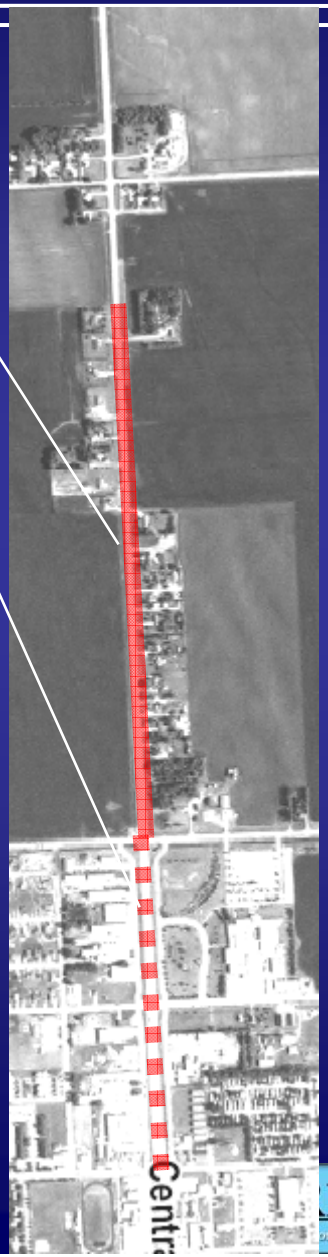
Future Congestion along Current Rural, Two-Lane Roadways

Future Congestion along Current Rural, Two-Lane Roadways

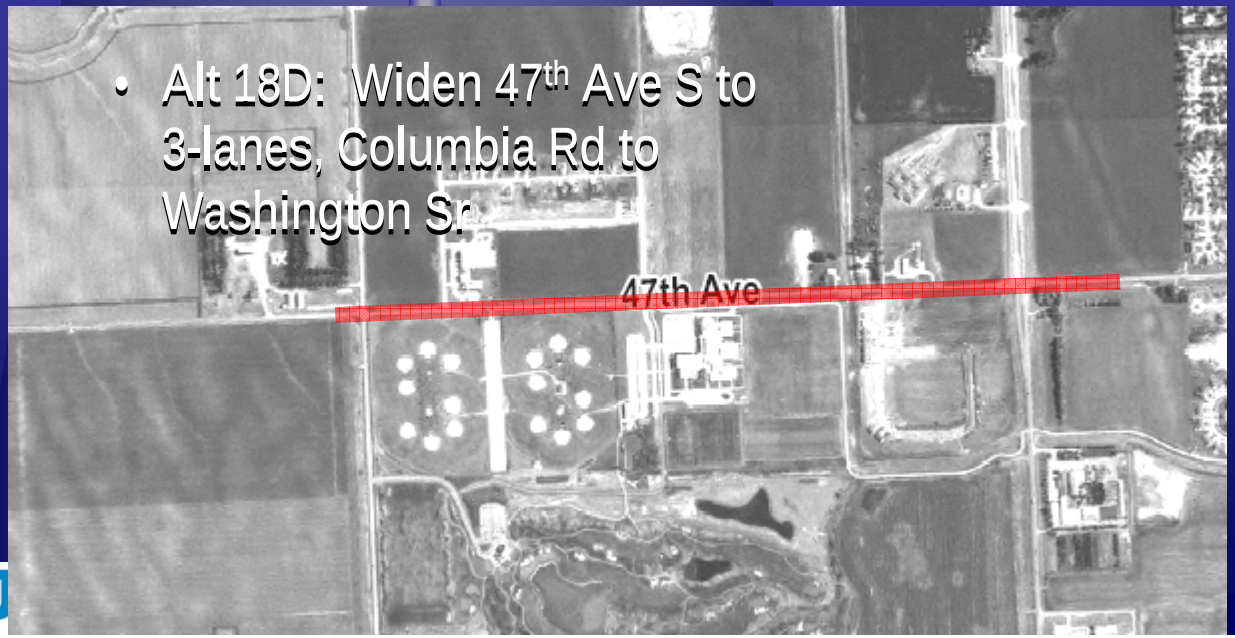
- Alt 18B: Widen Columbia Rd to 5-lanes, 36th Ave S to 50th Ave S

Future Congestion along Current Rural, Two-Lane Roadways

- Alt 18E:
  - Widen to 3-lanes, 23rd St to Dike
  - Widen to 5-lanes, 17th St to 23rd St



- Alt 18D: Widen 47th Ave S to 3-lanes, Columbia Rd to Washington St

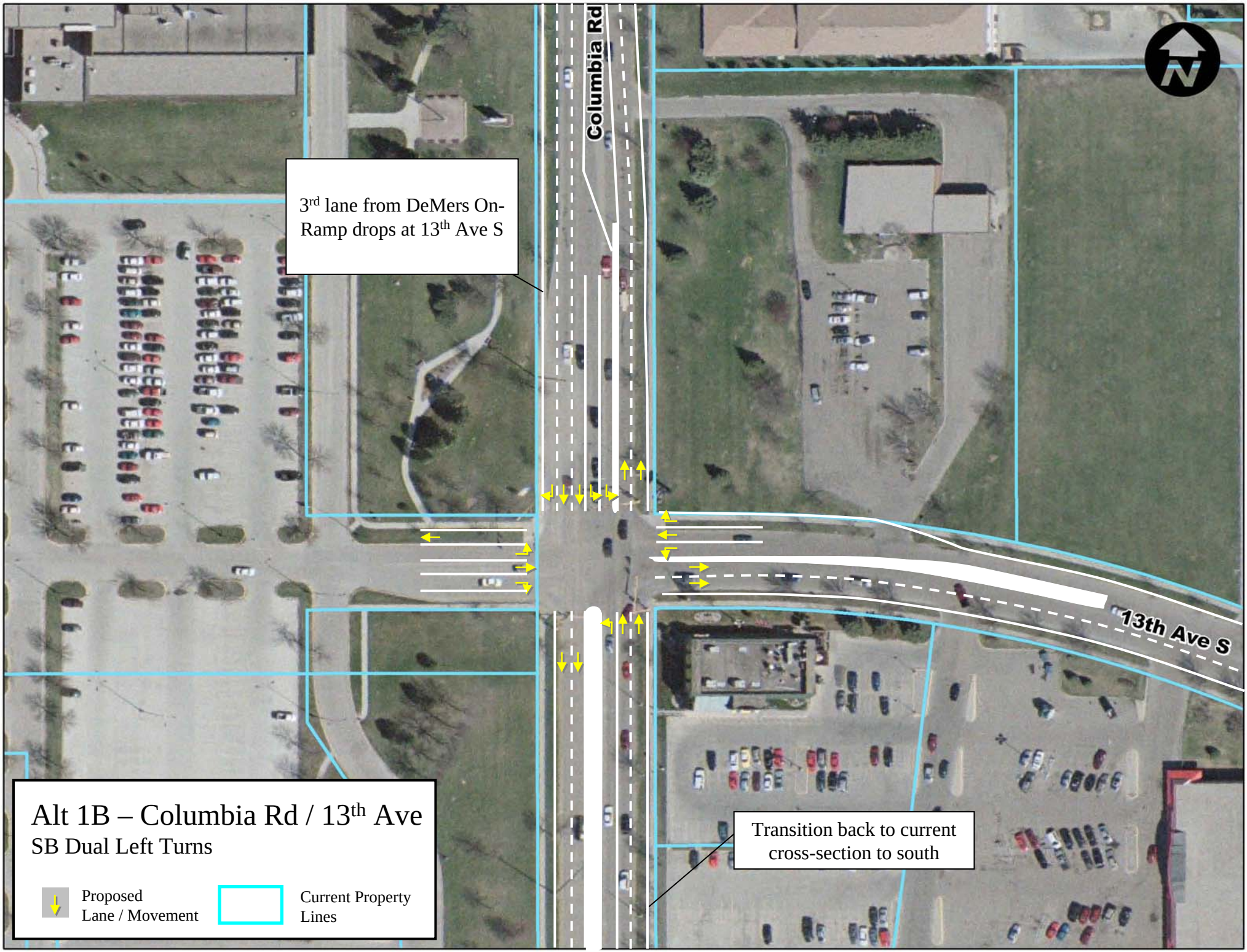


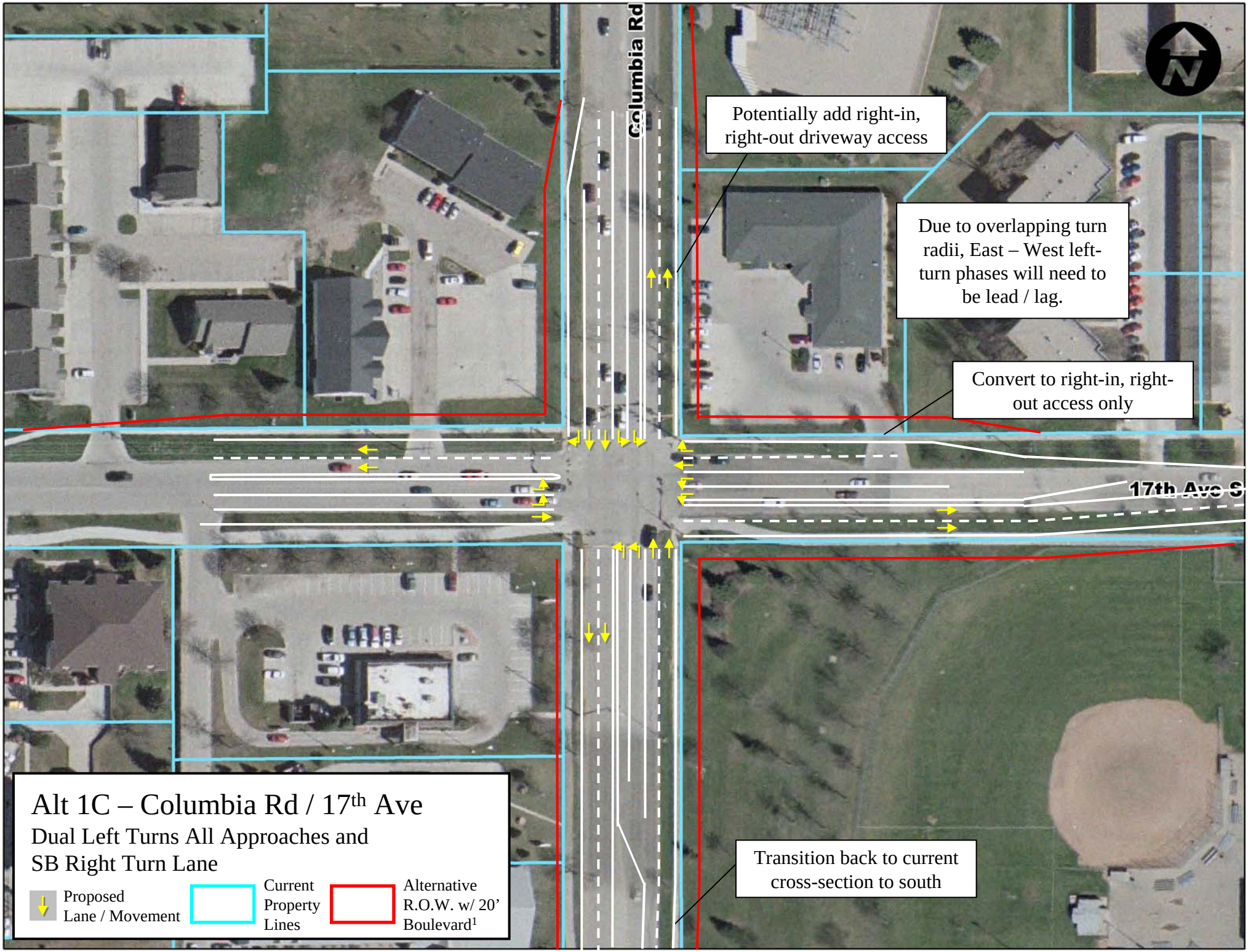
Next Steps

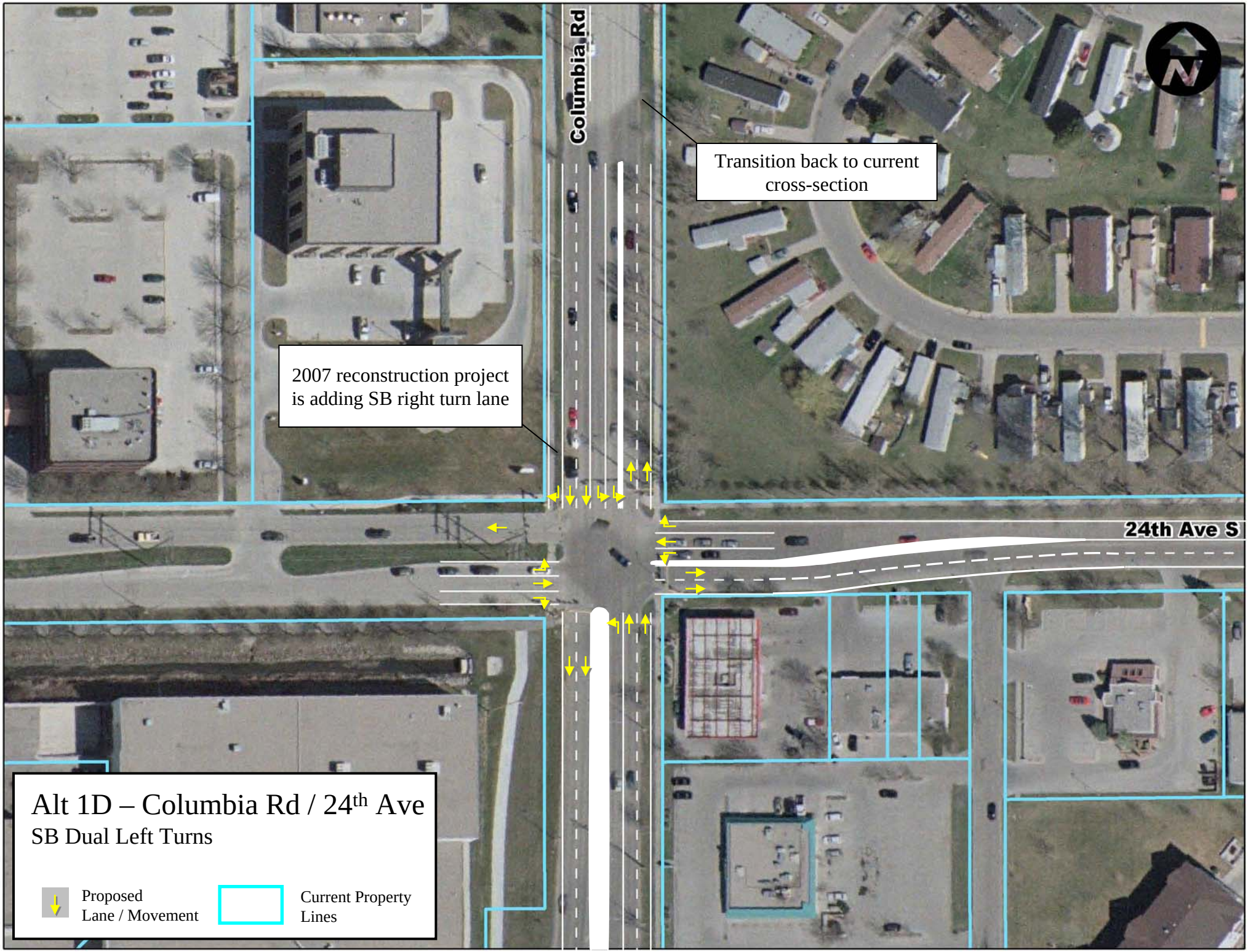
1. Refine Cost / Budget
2. Finalize Recommended List
3. Public Meeting
4. Documentation
5. Plan Approval

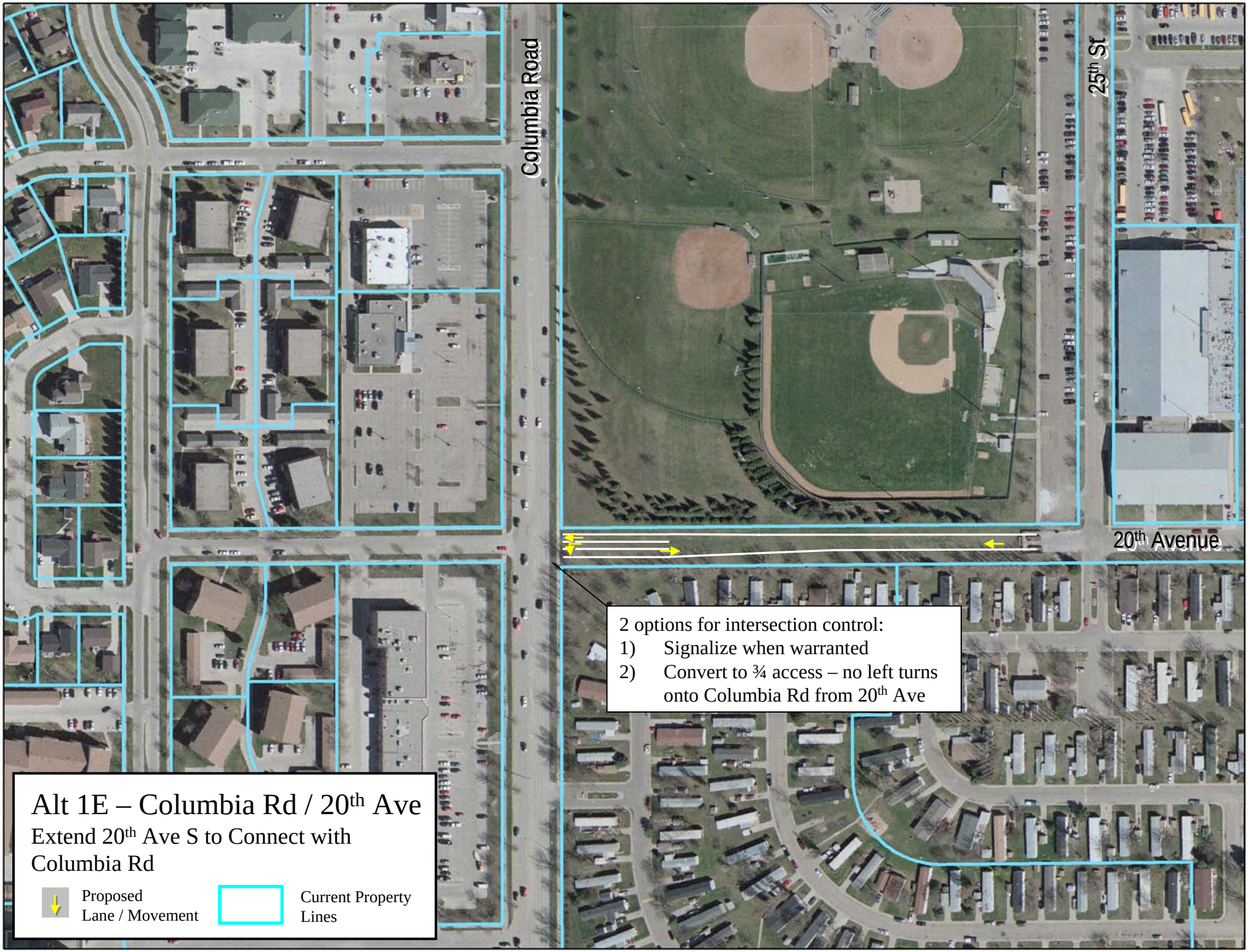
APPENDIX D:

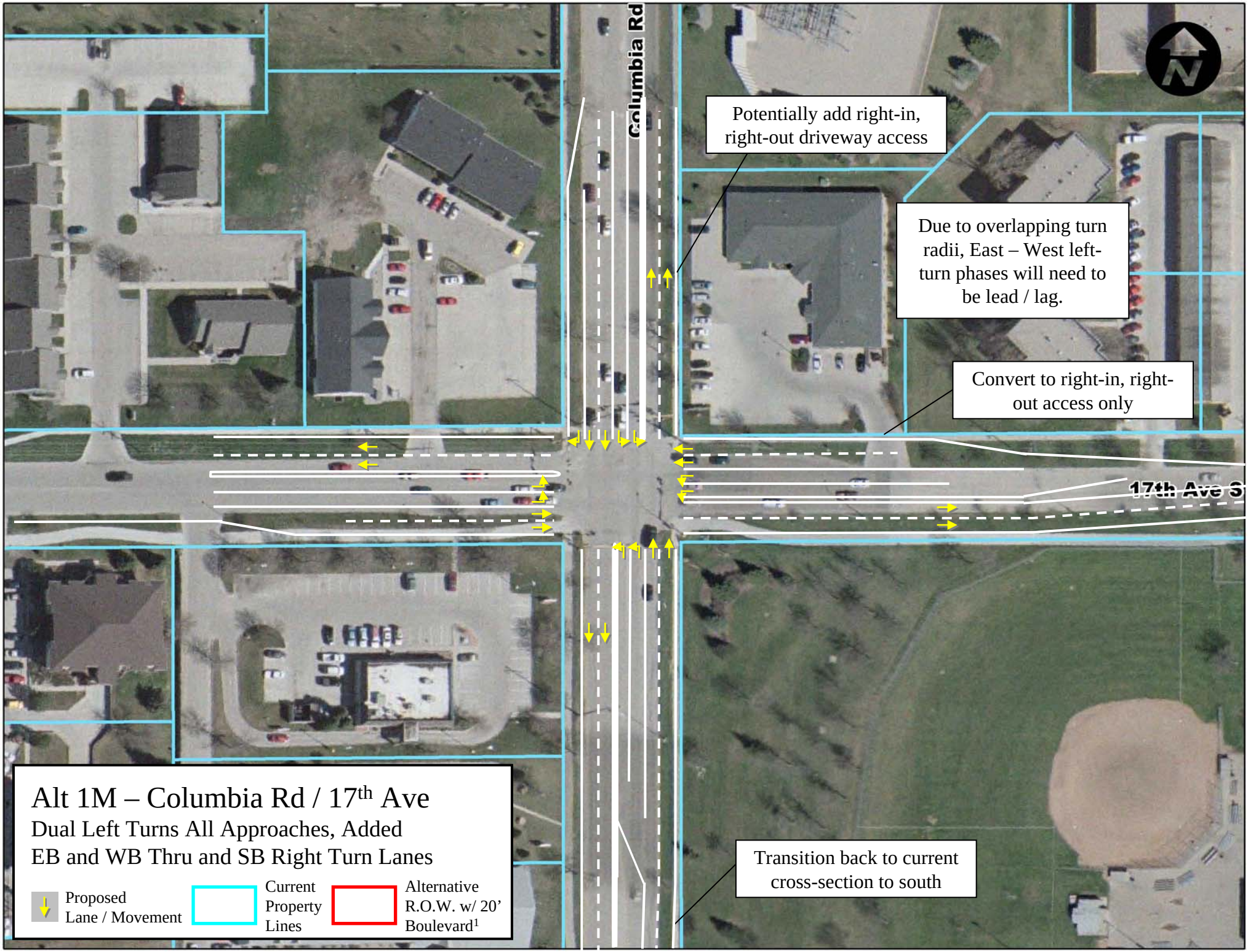
CONCEPTUAL DRAWINGS – ALTERNATIVES FOLLOWING INITIAL SECOND LEVEL SCREENING

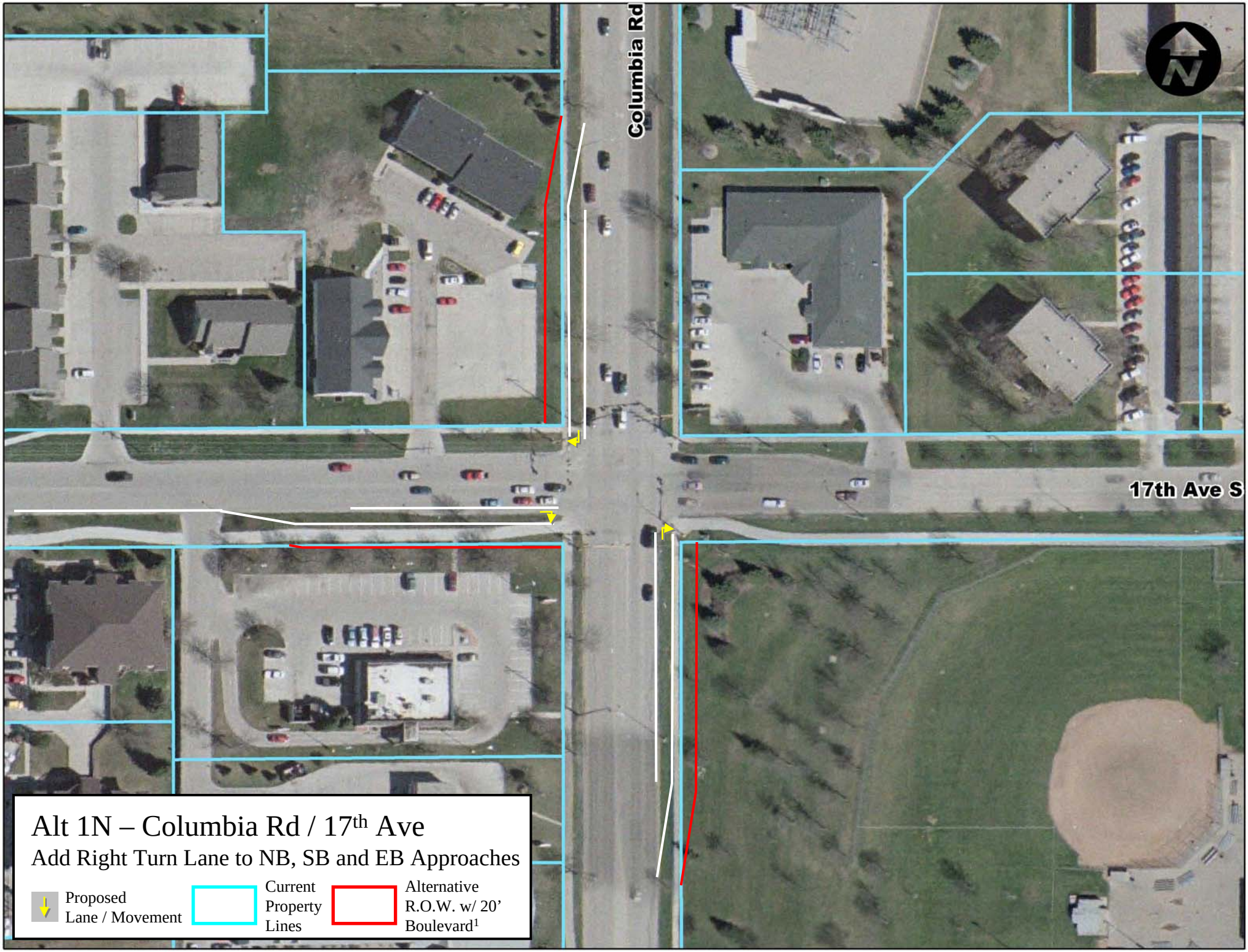

Columbia Rd
3rd lane from DeMers On-Ramp drops at 13th Ave S
13th Ave S
Transition back to current cross-section to south
Alt 1B – Columbia Rd / 13th Ave
SB Dual Left Turns
Proposed Lane / Movement
Current Property Lines


Columbia Rd
17th Ave S
Potentially add right-in, right-out driveway access
Due to overlapping turn radii, East – West left-turn phases will need to be lead / lag.
Convert to right-in, right-out access only
Transition back to current cross-section to south
Alt 1C – Columbia Rd / 17th Ave
Dual Left Turns All Approaches and
SB Right Turn Lane
Proposed Lane / Movement
Current Property Lines
Alternative R.O.W. w/ 20' Boulevard[1]

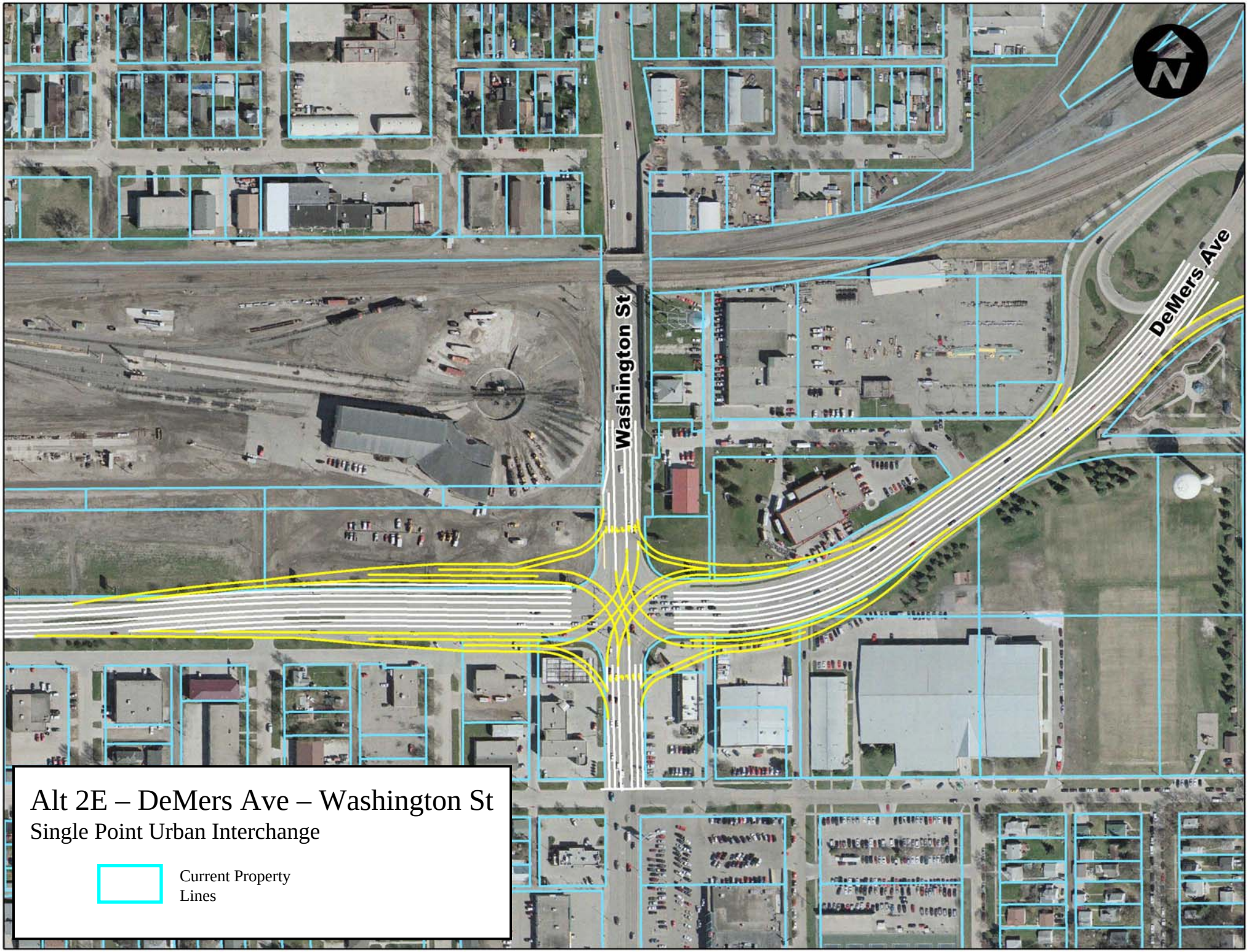

Columbia Rd
24th Ave S
Transition back to current cross-section
2007 reconstruction project is adding SB right turn lane
Alt 1D – Columbia Rd / 24th Ave
SB Dual Left Turns
Proposed Lane / Movement
Current Property Lines


Columbia Road
25th St
20th Avenue
2 options for intersection control:
1) Signalize when warranted
2) Convert to ¾ access – no left turns onto Columbia Rd from 20th Ave
Alt 1E – Columbia Rd / 20th Ave
Extend 20th Ave S to Connect with Columbia Rd
Proposed Lane / Movement
Current Property Lines


Columbia Rd
17th Ave S
Potentially add right-in, right-out driveway access
Due to overlapping turn radii, East – West left-turn phases will need to be lead / lag.
Convert to right-in, right-out access only
Transition back to current cross-section to south
Alt 1M – Columbia Rd / 17th Ave
Dual Left Turns All Approaches, Added
EB and WB Thru and SB Right Turn Lanes
Proposed Lane / Movement
Current Property Lines
Alternative R.O.W. w/ 20' Boulevard[1]


Columbia Rd
17th Ave S
N
Alt 1N – Columbia Rd / 17th Ave
Add Right Turn Lane to NB, SB and EB Approaches
Proposed Lane / Movement
Current Property Lines
Alternative R.O.W. w/ 20' Boulevard[1]

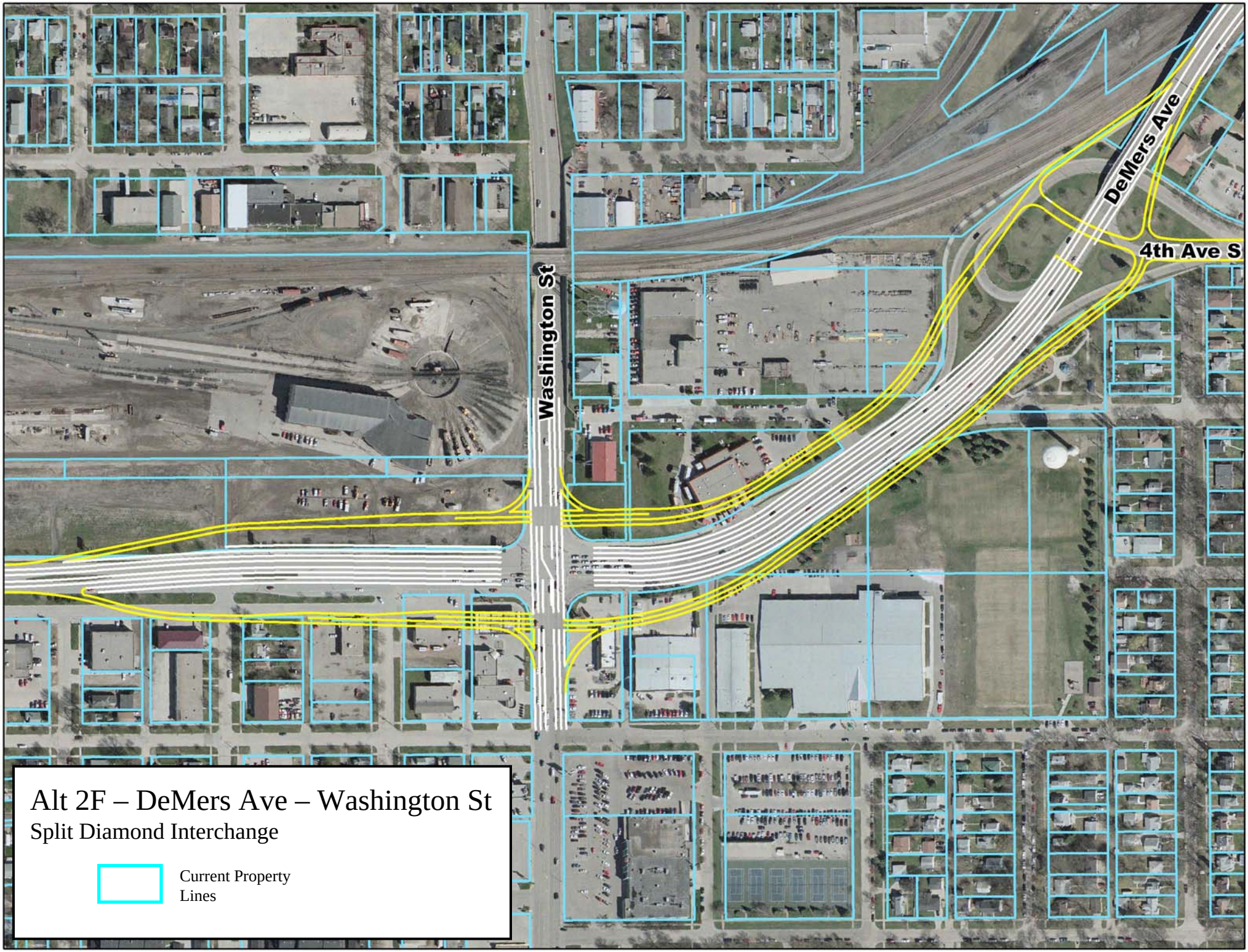
Washington St
DeMers Ave
N
Alts 2A, 2B, 2C and 2D –
DeMers Ave – Washington St
Add Third through Lane to All Approaches
Proposed
Lane / Movement
Current Property
Lines
Added Lanes



Alt 2E – DeMers Ave – Washington St

Single Point Urban Interchange

Current Property Lines


DeMers Ave
4th Ave S
Washington St
Alt 2F – DeMers Ave – Washington St
Split Diamond Interchange
Current Property Lines

Washington St
DeMers Ave
N
Alt 2G – DeMers Ave – Washington St
Add Third through Lane to All Approaches and
Dual Left-turn Lanes on NB and SB Approaches
Proposed
Lane / Movement
Current Property
Lines

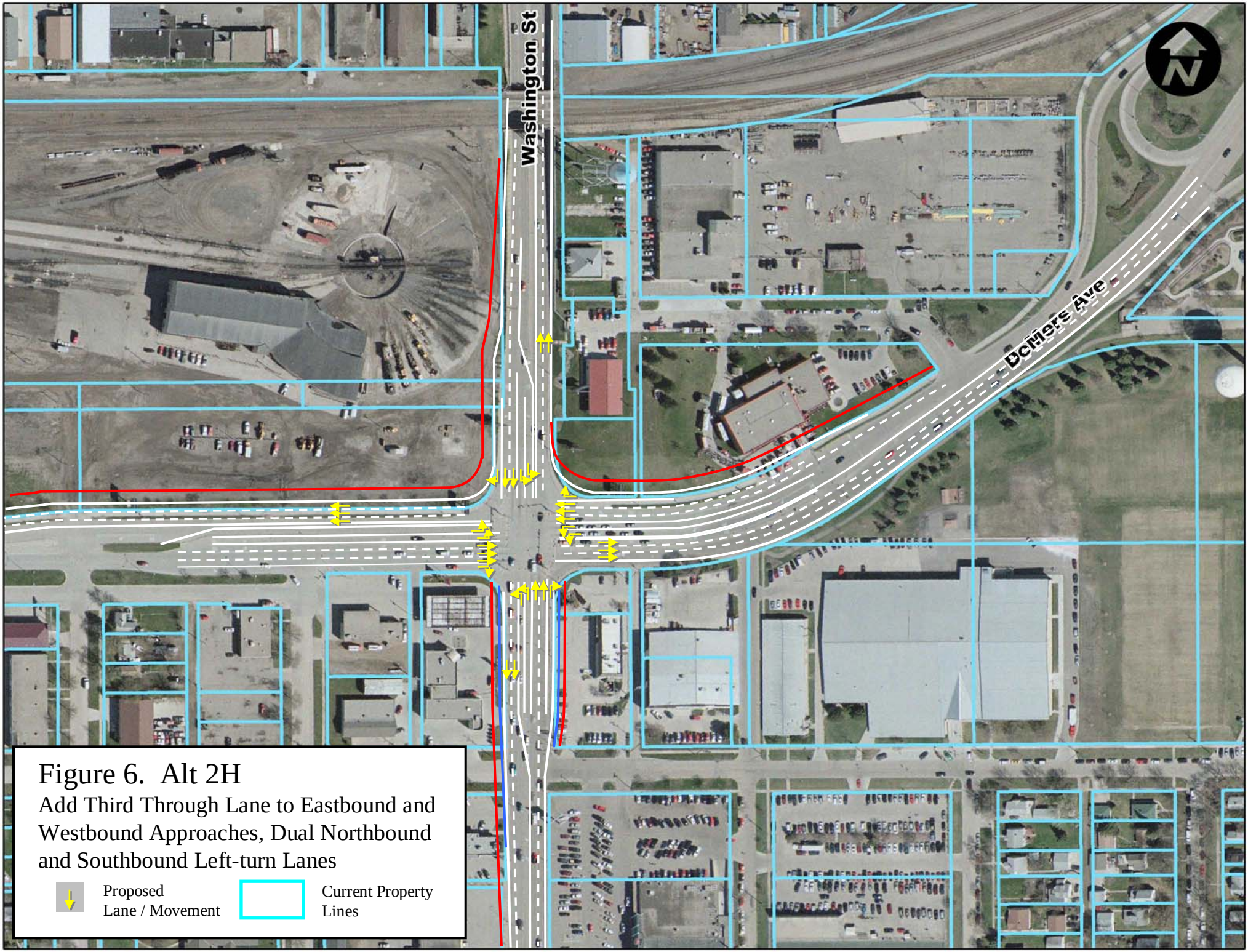
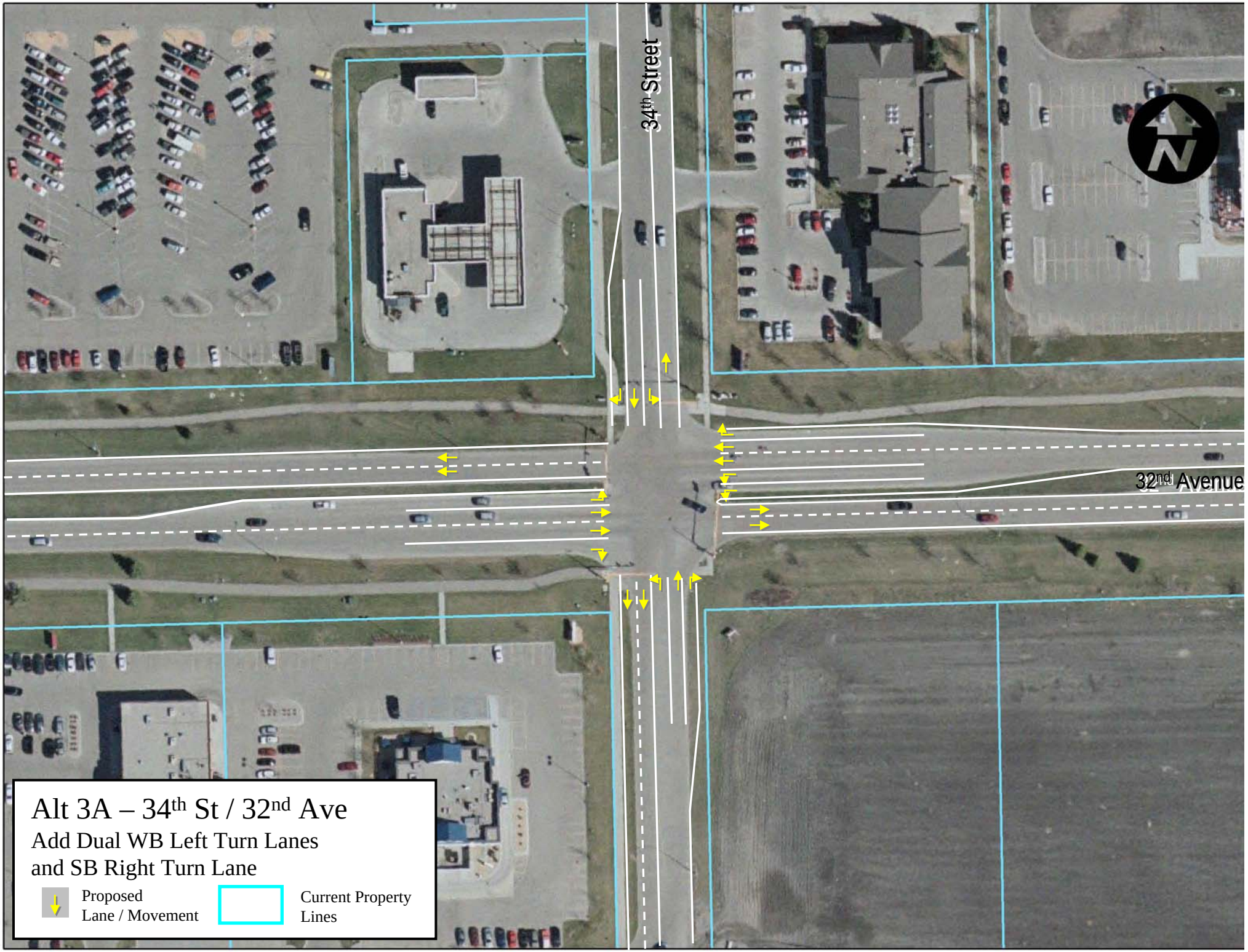


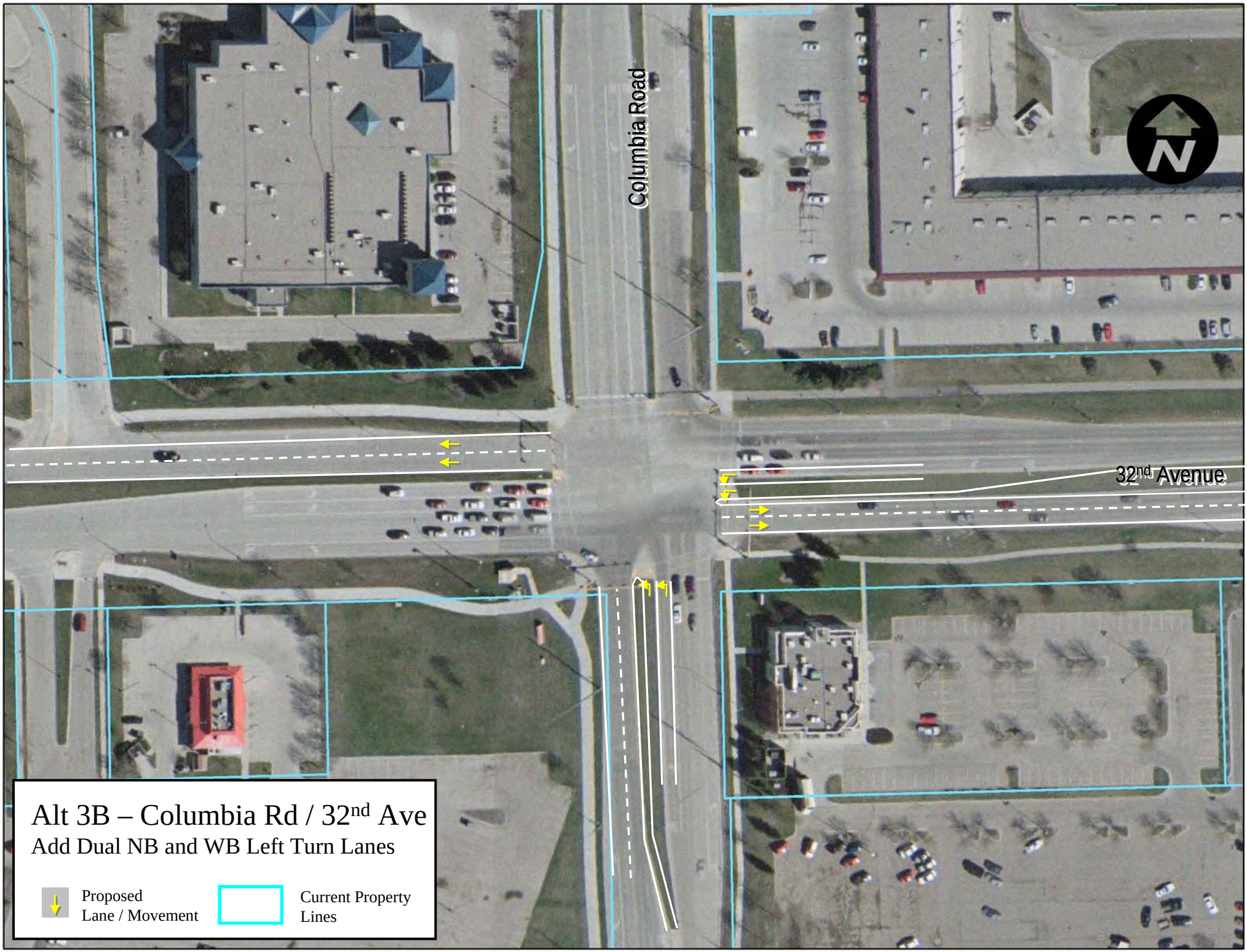
Figure 6. Alt 2H

Add Third Through Lane to Eastbound and Westbound Approaches, Dual Northbound and Southbound Left-turn Lanes

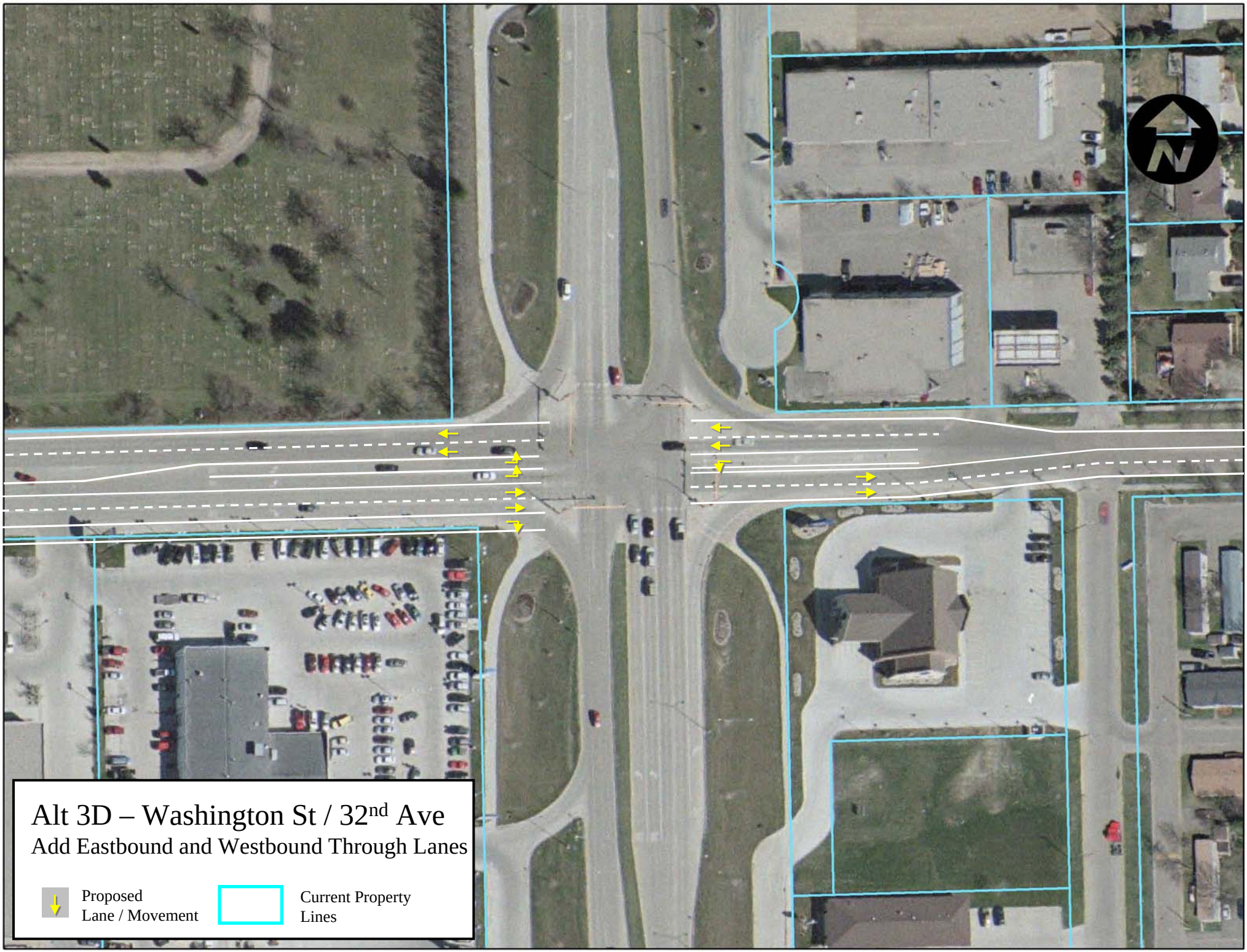
Proposed Lane / Movement

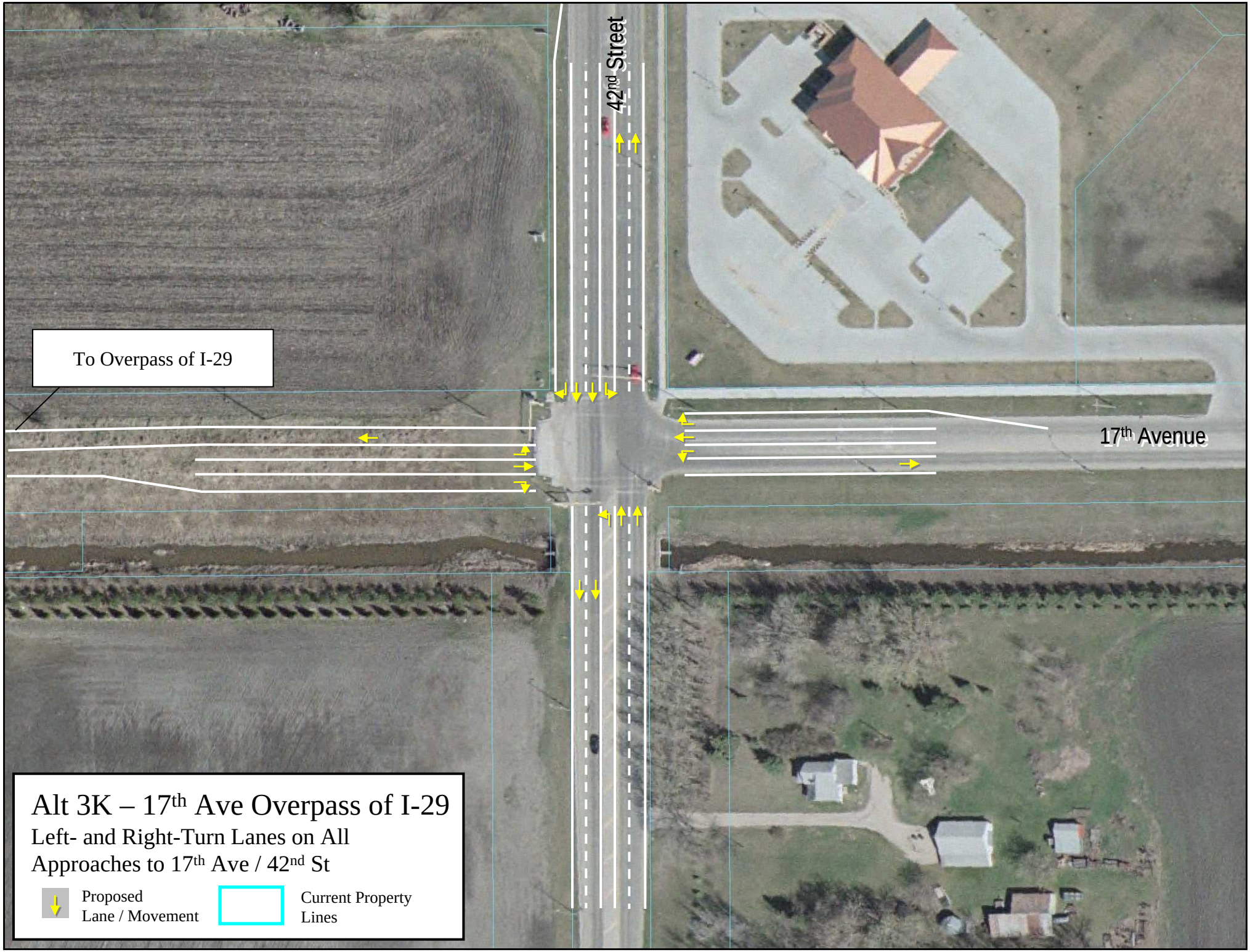
Current Property Lines


34th Street
32nd Avenue
N
Alt 3A – 34th St / 32nd Ave
Add Dual WB Left Turn Lanes
and SB Right Turn Lane
Proposed
Lane / Movement
Current Property
Lines

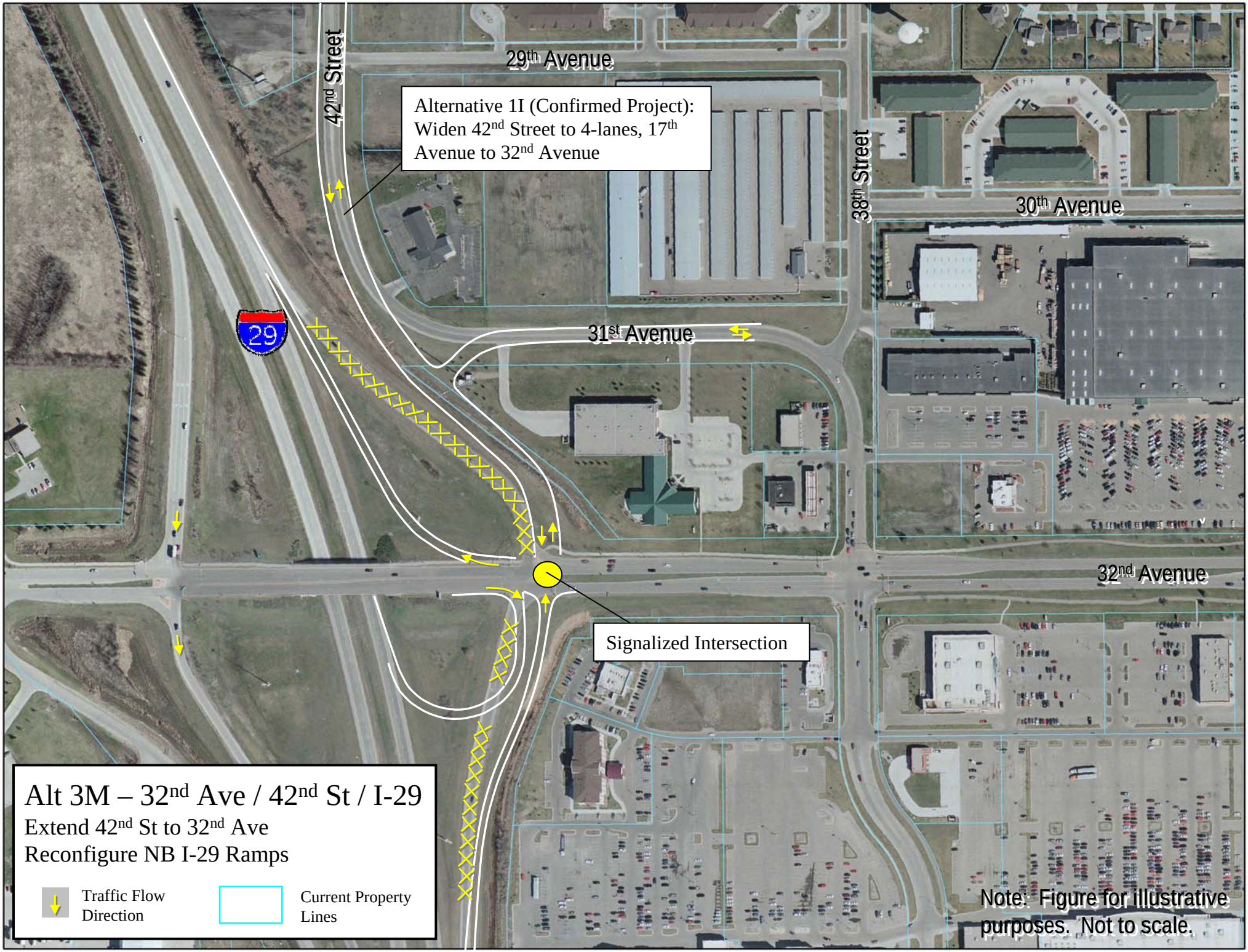

Columbia Road
32nd Avenue
Alt 3B – Columbia Rd / 32nd Ave
Add Dual NB and WB Left Turn Lanes
Proposed Lane / Movement
Current Property Lines

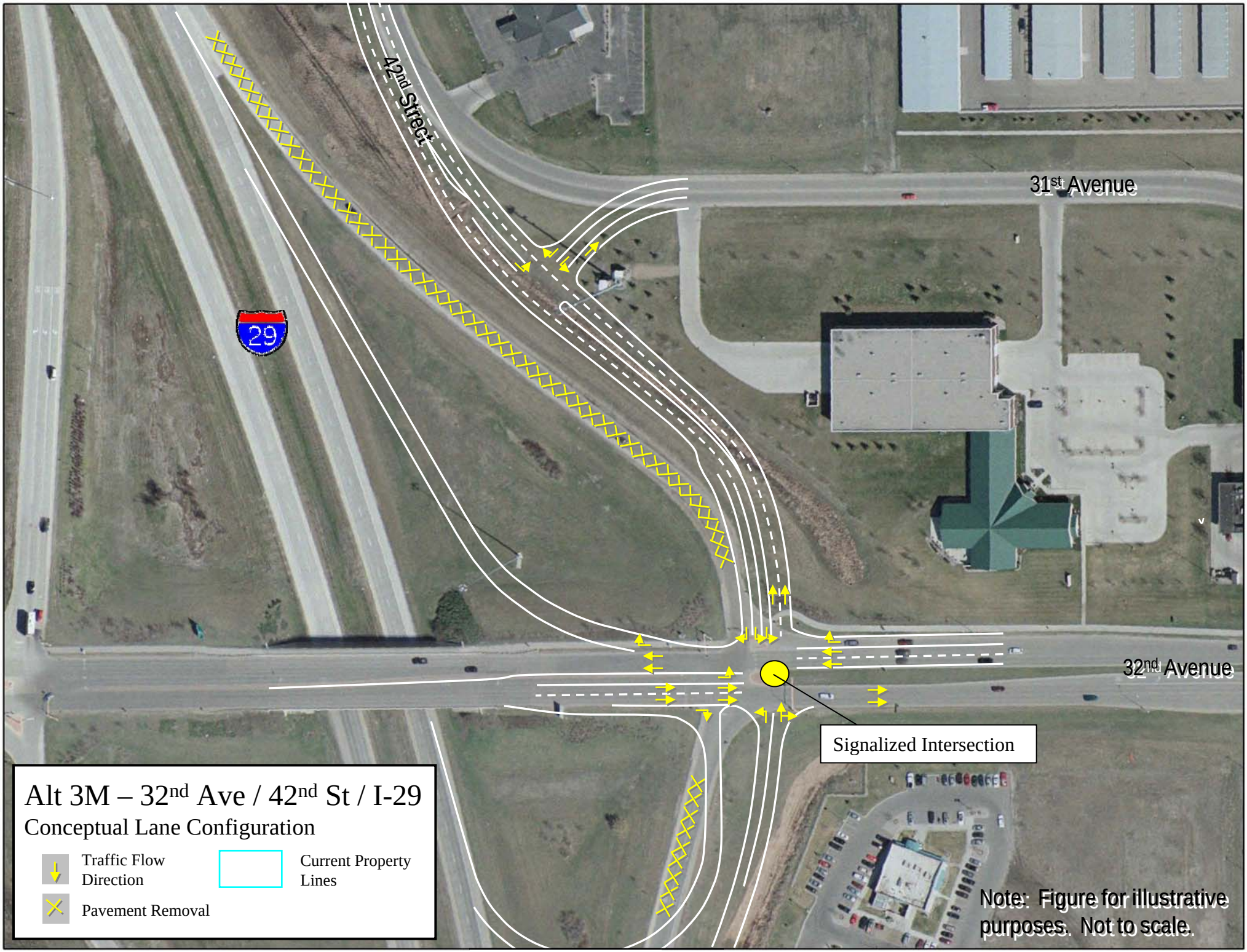
38th Street
32nd Avenue
Alt 3C – 38th St / 32nd Ave
Add Dual NB and SB Left Turn Lanes and SB Right Turn Lane
Proposed Lane / Movement
Current Property Lines


Alt 3D – Washington St / 32nd Ave
Add Eastbound and Westbound Through Lanes
Proposed
Lane / Movement
Current Property
Lines


42nd Street
17th Avenue
To Overpass of I-29
Alt 3K – 17th Ave Overpass of I-29
Left- and Right-Turn Lanes on All Approaches to 17th Ave / 42nd St
Proposed Lane / Movement
Current Property Lines

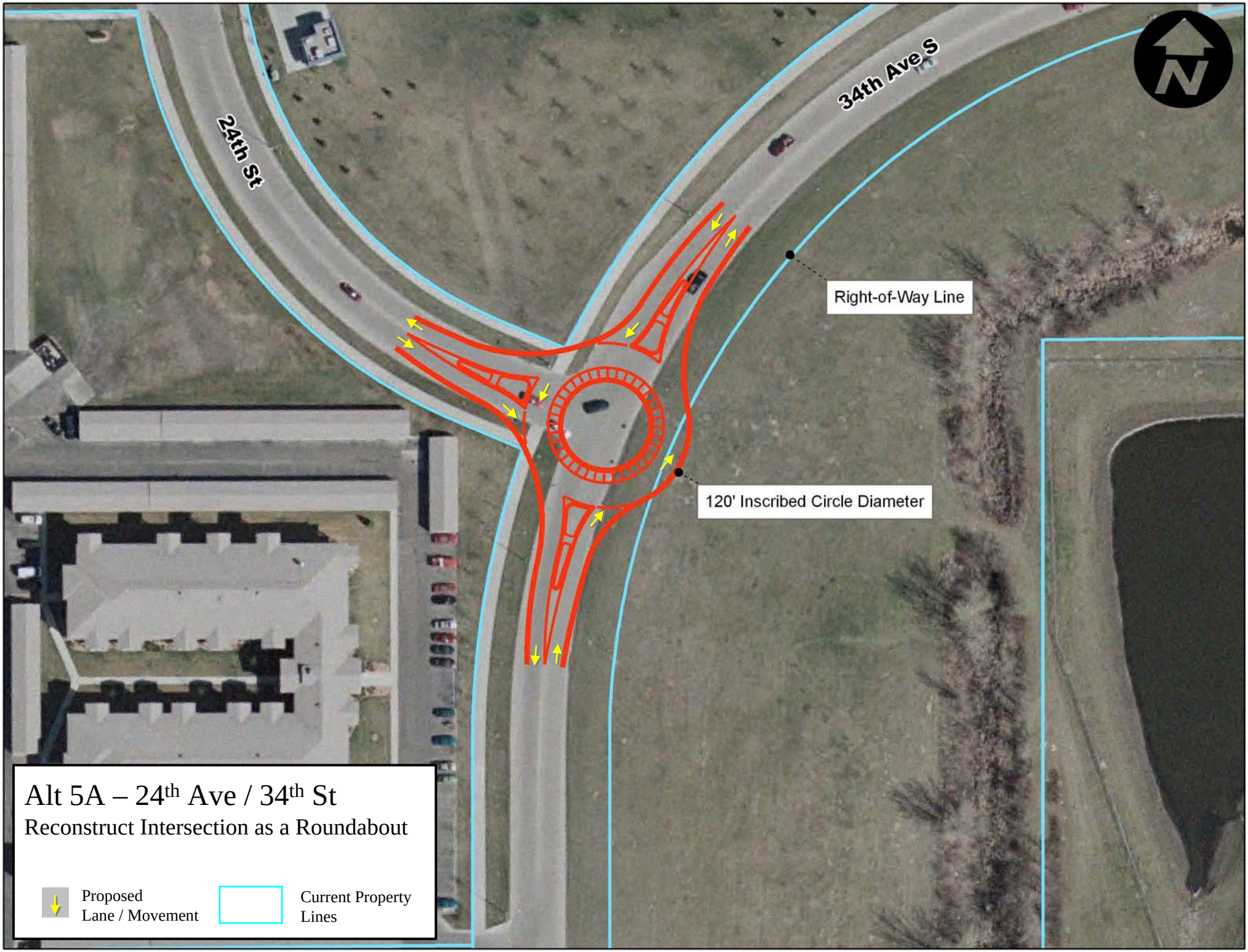
Relocated NB I-29 On-Ramp
42nd Street
29th Avenue
Alternative 1I (Confirmed Project): Widen 42nd Street to 4-lanes, 17th Avenue to 32nd Avenue
38th Street
30th Avenue
SB Stop Controlled
For safety, consider closing east leg of 42nd St. Provide local access between 42nd St and 38th St via 24th Ave S and 29th Ave S.
29
31st Avenue
32nd Avenue
Alt 3L – 32nd Ave / 42nd St / I-29
Extend 42nd St to 32nd Ave
Move NB On-Ramp
Traffic Flow Direction
Current Property Lines
Note: Figure for illustrative purposes. Not to scale.

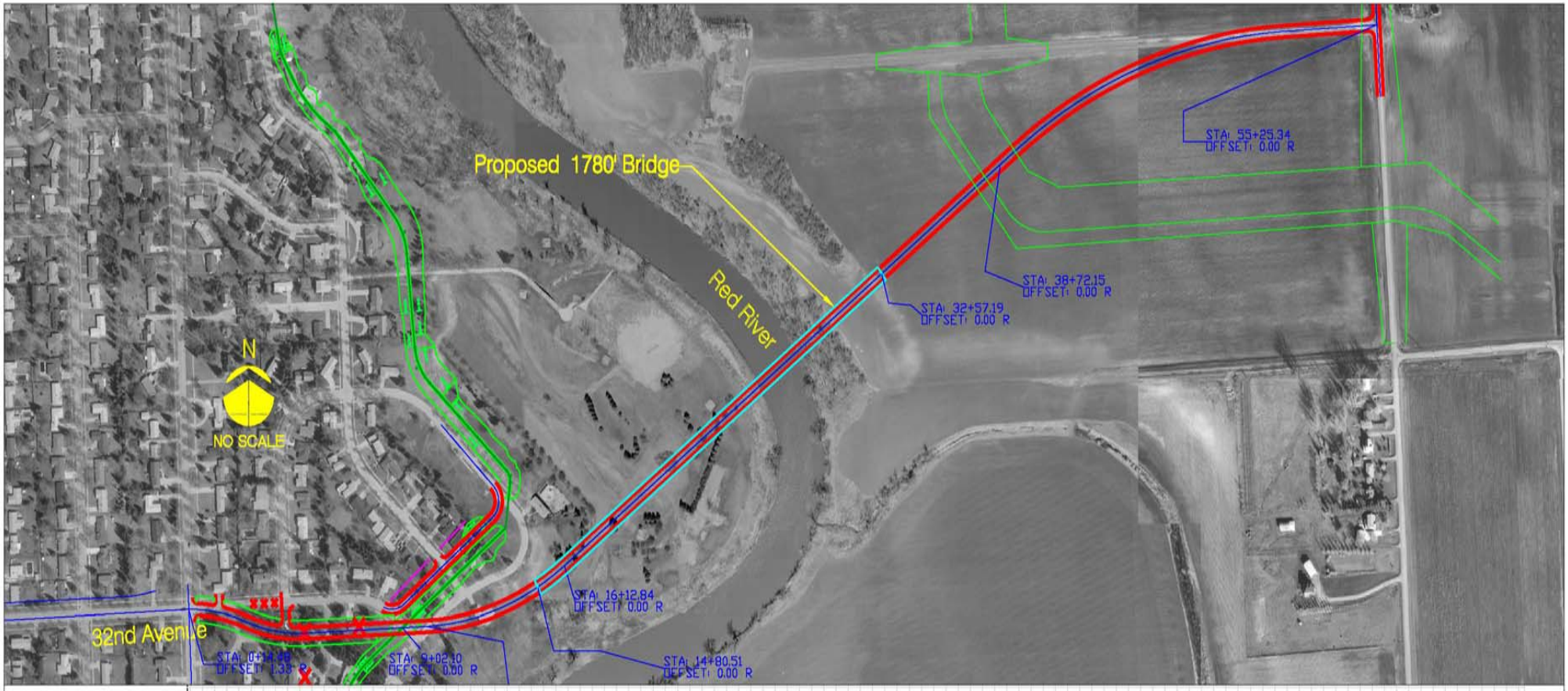

42nd Street
29th Avenue
Alternative 1I (Confirmed Project): Widen 42nd Street to 4-lanes, 17th Avenue to 32nd Avenue
38th Street
30th Avenue
29
31st Avenue
32nd Avenue
Signalized Intersection
Alt 3M – 32nd Ave / 42nd St / I-29
Extend 42nd St to 32nd Ave
Reconfigure NB I-29 Ramps
Traffic Flow Direction
Current Property Lines
Note: Figure for illustrative purposes. Not to scale.

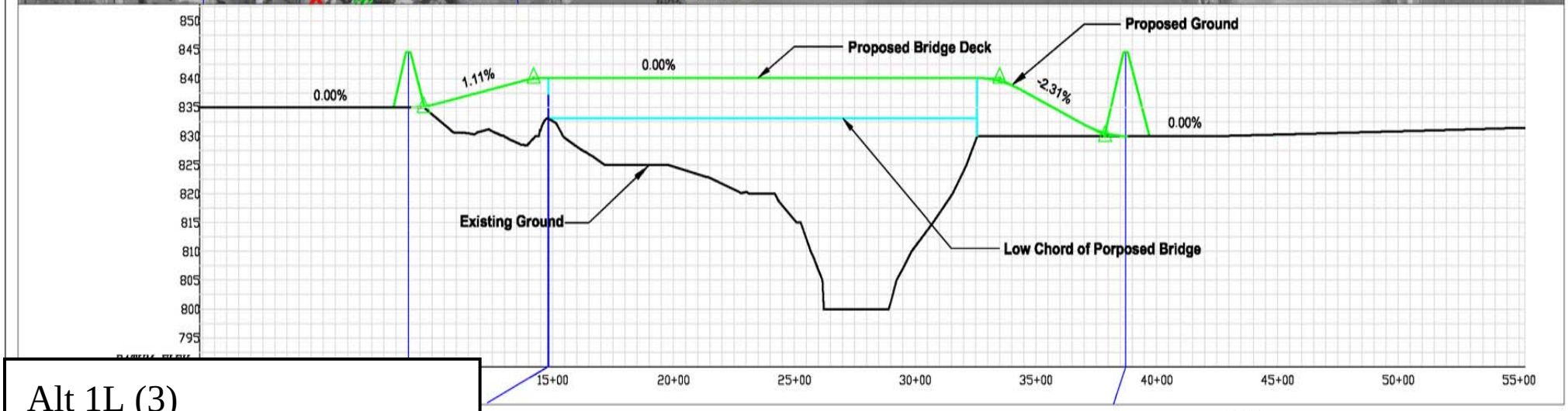

42nd Street
31st Avenue
29
32nd Avenue
Signalized Intersection
Alt 3M – 32nd Ave / 42nd St / I-29
Conceptual Lane Configuration
Traffic Flow Direction
Current Property Lines
Pavement Removal
Note: Figure for illustrative purposes. Not to scale.

38th Street
32nd Avenue
Center Through Lane as Shared Left-turn / Through Lane for event egress (requires signal upgrade).
Alt 3N – 38th St / 32nd Ave
Add SB Right Turn Lane (Alerus Traffic Study Recommendation)
Proposed Lane / Movement
Current Property Lines

34th Street
32nd Avenue
Adjust signal phasing to protected / permitted operations for southbound and northbound left-turns.
Alt 3O – 34th St / 32nd Ave
Add SB Right Turn Lane
Proposed Lane / Movement
Current Property Lines


24th St
34th Ave S
Right-of-Way Line
120' Inscribed Circle Diameter
Alt 5A – 24th Ave / 34th St
Reconstruct Intersection as a Roundabout
Proposed Lane / Movement
Current Property Lines

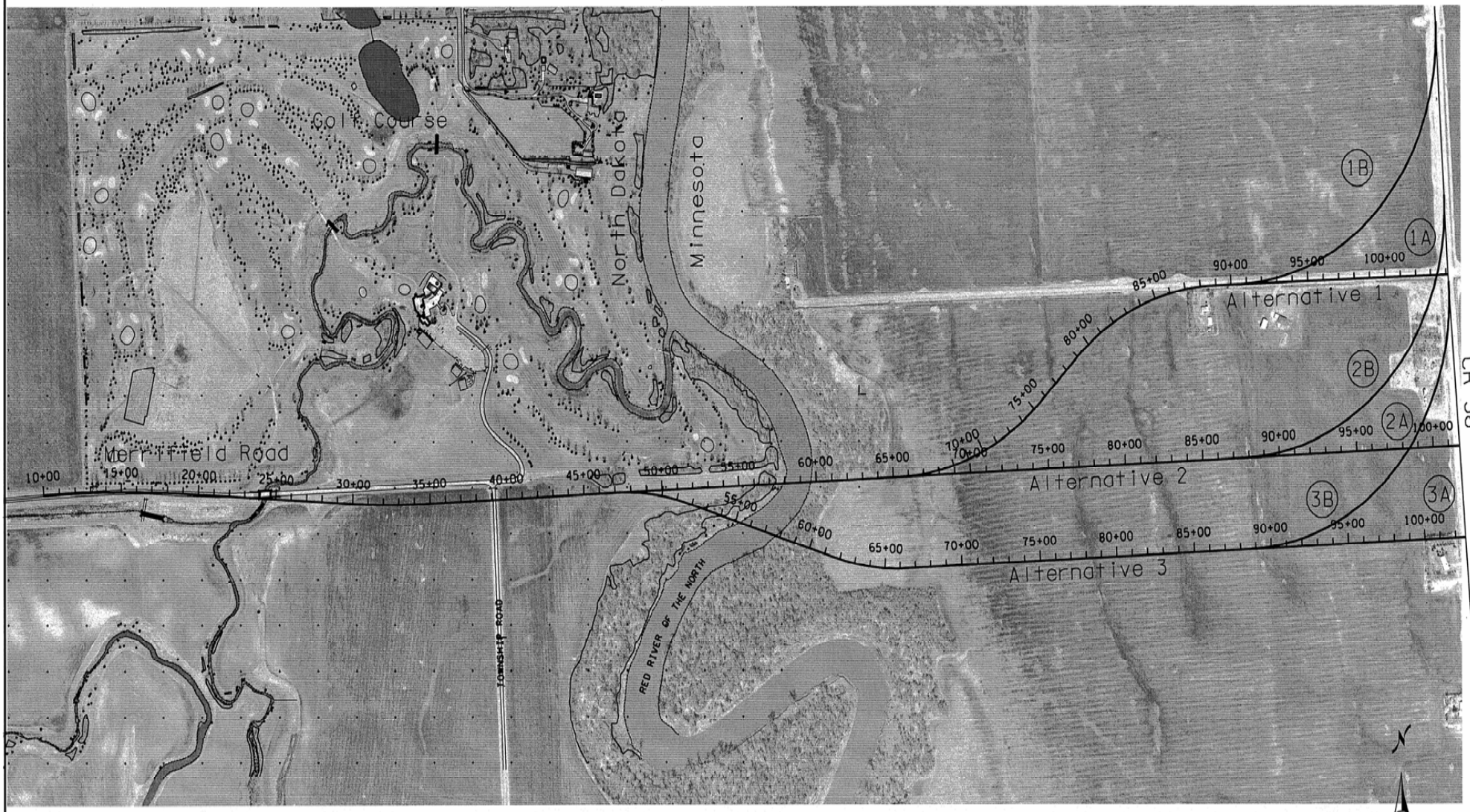




Alt 1L (3)
32nd Ave Red River Crossing

32nd AVENUE RIVER CROSSING - ALTERNATIVE 3

LEGEND:
- BACK OF CURB
- SIDEWALK
- BRIDGE STRUCTURE
- PROPOSED LEVEE
- BRIDGE RAIL
- R.O.W.
- BRIDGE CENTERLINE PROFILE
- RELOCATIONS



Alt 1K
Merrifield Rd Red River Crossing

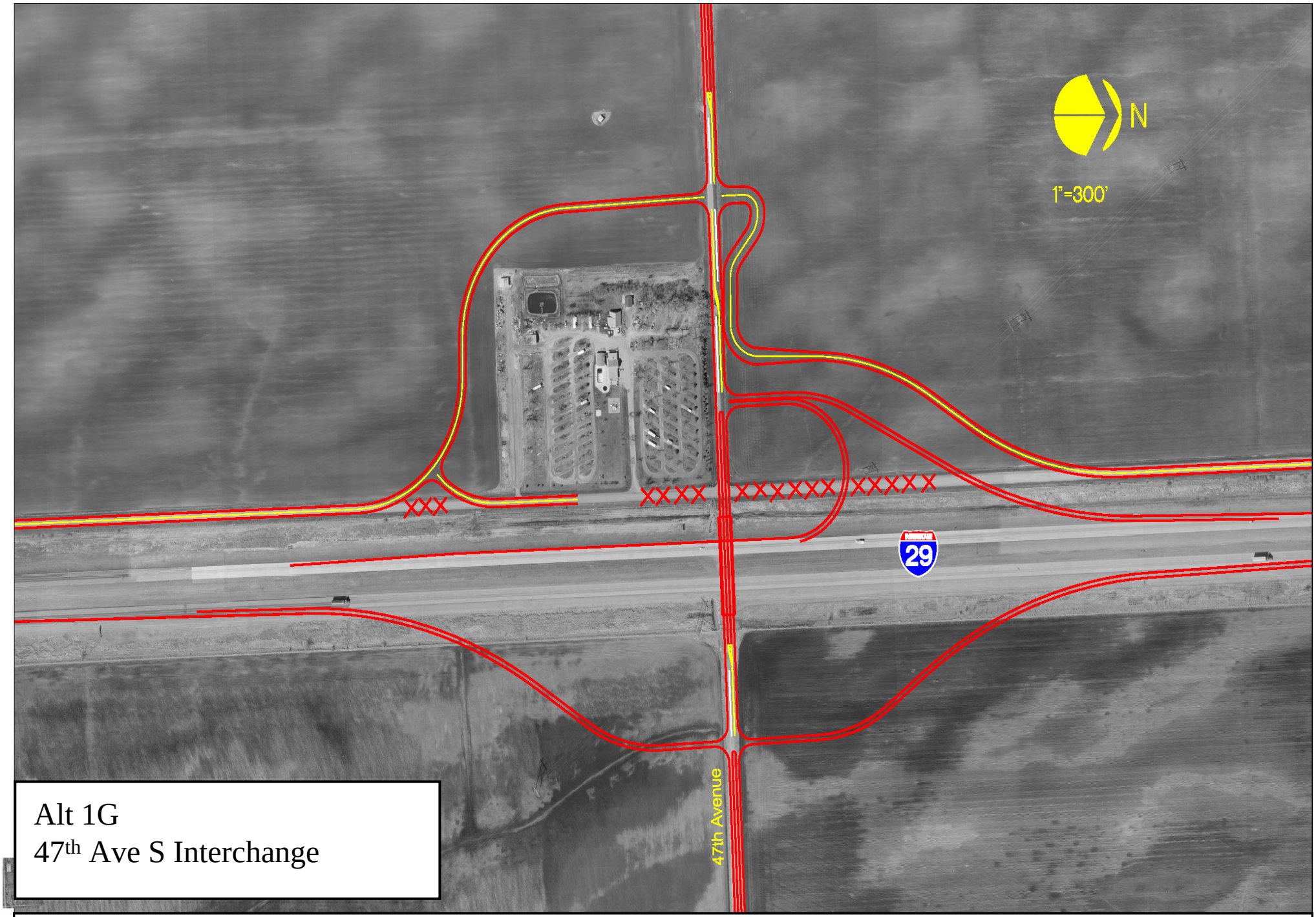
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of Minnesota.

HDR

ROADWAY ALIGNMENT ALTERNATIVES

MERRIFIELD ROAD FEASIBILITY STUDY

FIGURE 5-1



Alt 1G
47th Ave S Interchange

47th AVENUE / I-29 INTERCHANGE
GRANDFORKS, NORTH DAKOTA

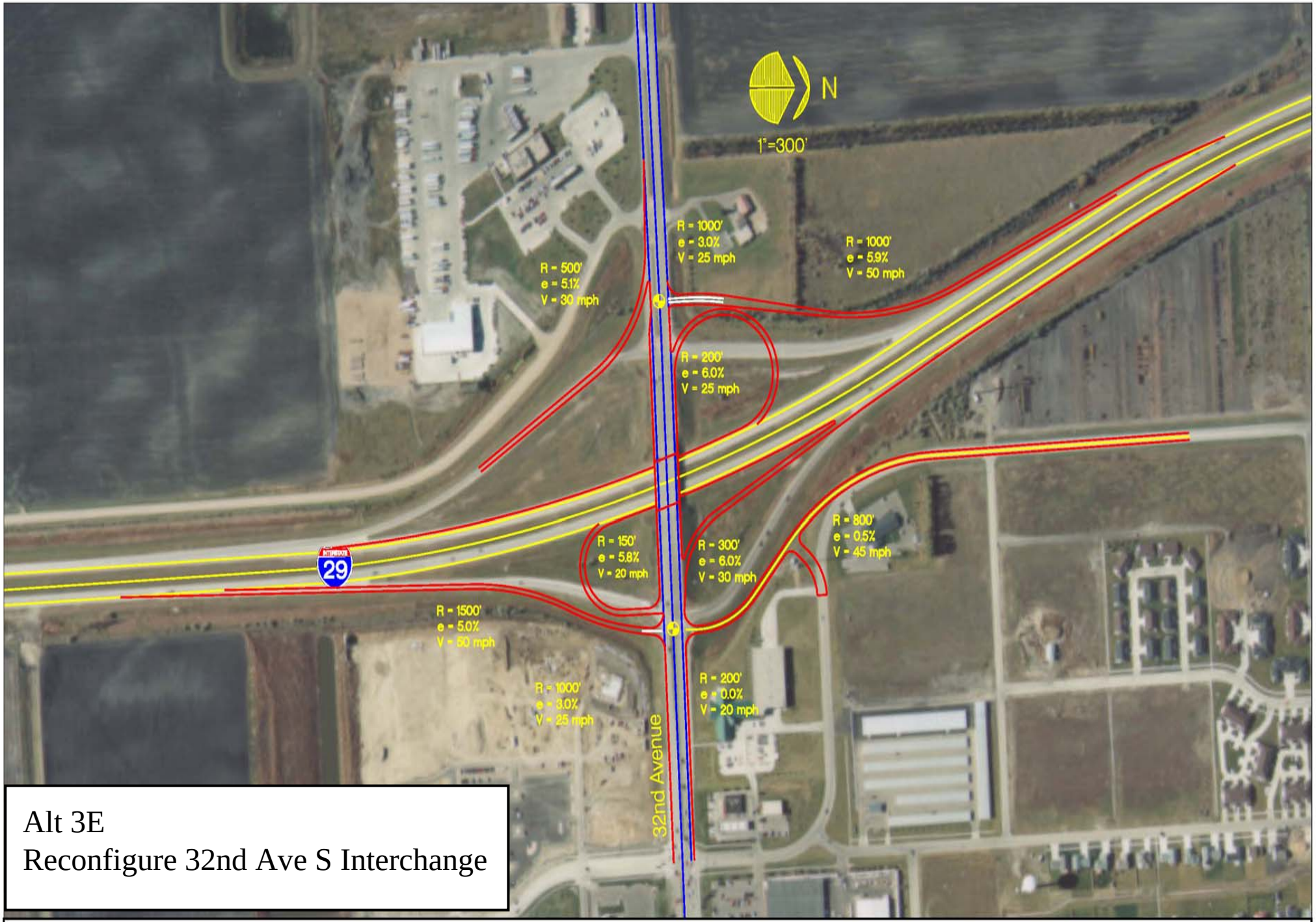
HMS

0 100' 200' 300'

47th AVENUE / I-29 INTERCHANGE
ALTERNATIVE 1

LEGEND:
NEW CURBS, MEDIANS & ISLANDS

FIGURE #



Alt 3E
Reconfigure 32nd Ave S Interchange

GRANDFORKS / EAST GRANDFORKS TRANSPORTATION PLAN UPDATE
GRANDFORKS / EAST GRANDFORKS MPO

HMS Consulting Group Inc

0 100' 200' 300'

32nd AVENUE / I-29 INTERCHANGE
ALTERNATIVE 1

LEGEND:
NEW CURBS, MEDIANS & ISLANDS
EXISITNG CURBS
SIGNAL

FIGURE #

APPENDIX D:

ALTERNATIVES ANALYSIS SUMMARY TABLE

TABLE. Summary of Alternatives Analysis, September 3, 2007

URS

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective			
	Social	Engineering	Environmental	Cost Estimate
Congestion Along Columbia Road Corridor				
1 A - Add southbound lane between DeMers on-ramp and 13th Ave.	* Minor right-of-way (R.O.W.) acquisition required west of Columbia Rd to maintain sidewalk set-back.	* Provides greater distance for traffic merging from DeMers to SB Columbia. * Utilized as right-turn lane for 11th Ave and 13th Ave. * Part of Columbia Rd corridor study recommendations.	* No significant impacts anticipated.	$300,000
- Add turn lanes at signalized intersections along Columbia Road between 32nd Avenue and DeMers Ramps: 1 B * 13th Ave S / Columbia Rd - Add Southbound dual left-turn lanes.	* Minor R.O.W. acquisition would be required to maintain sidewalk set-back. * Additional traffic lane east of Columbia would be in residential area.	* Currently 270 southbound left turns in PM peak; projected to be 300 in 2035. Concept provides LOS "C" in 2035 PM peak, compared to LOS "E" in 2035 No Build. * Widen and restripe 13th Avenue to a 4-lane cross-section for approximately 1/4 mile on east of intersection to accommodate the southbound left-turns. Restripe only bevond 300' feet east of Columbia Road.	* Potential 4f issue - minor widening of EB 13th St into linear park west of 23rd St.	$500,000
1 C * 17th Ave S / Columbia Rd - Add dual left-turn lanes for all approaches.	* Driveways for offices on NW and NE corners converted to right-in-right-out only. * Wider roadway cross sections increase pedestrian crossing times and concerns for pedestrian safety. * Depending on property setback distance, potential for parking lot impacts to businesses.	* Some widening, mostly restriping of 17th Avenue for an additional lane for approximately 1/4 mile on each side of intersection to accommodate the northbound and southbound left-turns. * Current property line setbacks along 17th Ave are 15 to 24 feet from roadway. * Intersection currently operates at LOS "E" during PM peak. Concept provides LOS "D" in 2035 PM peak, compared to LOS "F" in 2035 No Build. * In combination with Base Confirmed network and 20th Ave Extension (Alt 1E), provides LOS "C" in 2035 PM peak.	* Potential 4f issue if ROW is acquired from Apollo Park or Kraft Field in the SE corner of this intersection.	$2,500,000
1 D * 24th Ave / Columbia - Add dual left-turn lanes for SB approach. Restripe east / west legs to provide 2 through lanes.	* Minor R.O.W. acquisition would be required along 24th Ave east of Columbia Rd in order to maintain sidewalk set- * Reduced Columbia Rd sidewalk setback could avoid significant acquisition of R.O.W. for the SB right-turn lane; otherwise could impact operations of bank drive-thru. * Wider roadway cross sections increase pedestrian crossing times and concerns for pedestrian safety.	* Concept would provide LOS "C" in 2035 PM peak, compared to LOS "E" in 2035 No Build. * Widen and restripe 24th Avenue to a 5-lane cross-section for approximately 1/4 mile on east side of intersection to accommodate the southbound left-turns. * Convert WB approach to 1 left-turn lane, 2 through lanes. Current (2007) reconstruction adds SB right-turn lane.	* No significant impacts anticipated.	$400,000
1 E - Extend 20th Ave South between Columbia Rd and 25th Street.	* Decreases traffic adjacent to Park and Red River High School at 17th Ave / 25th Street. * Increases traffic along 20th Ave S east of Columbia, currently classified as local street. * Past concerns about baseballs from fields hitting cars on 20th Ave S. * R.O.W. is available for extension - no impacts.	* Provides diversion of approximately 2,000 vehicles per day (VPD) from 17th Ave. On its own, slightly improve operations at 17th Ave - Columbia Rd. * Signal at this location would be coordinated with adjacent Columbia Road intersections. Signal recommended in Columbia Rd Study. * Consider 3/4 access intersection to avoid signal and maintain reasonable progression on Columbia Rd - less diversion benefit with 3/4 access.	* No significant impacts anticipated, but should consider potential for 4f impacts with adjacent park.	$400,000
1 F - Widen Columbia Road to a 7-lane cross section between Demers Ave and 32nd Ave (2030 LRTP Recommendation)	* R.O.W. acquisition would be required along Columbia Rd for new lanes, maintained landscape berm and relocated sidewalk. * Dependent on property line setbacks, the ROW impact could be up to 24' for each parcel along this corridor. * Parking impacts to several businesses: up to 2 businesses, 12 residences and pump station acquired. * Wider roadway cross sections increase pedestrian crossing times and concerns for pedestrian safety.	* Concept provides additional capacity for north/south through movements. This design provides limited benefits to left-turn delays at 13th, 17th and 24th Ave. * Wider cross section requires all Columbia Rd left-turns to be protected only operations. Negative impact for traffic operations, particularly for the left-turn movements. * On it's own, concept provides LOS "E" at Columbia Rd - 17th Ave due to high delays for left-turning traffic. * Attracts 3,000 to 8,000 additional vpd in 2035 to Columbia Rd compared to base scenario.	* Increased traffic volumes closer to homes could result in noise impacts. * Impacts to Apollo Park - approximately 1/2 acre of acquired.	$12,500,000

TABLE. Summary of Alternatives Analysis, September 3, 2007

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective			
	Social	Engineering	Environmental	Cost Estimate
1 G - Create 47th Ave S / I-29 Interchange (2030 LRTP Reserved Right-of-Way)	* RV Park / Campground adjacent to 47th Ave / I-29 could be avoided if SB on-ramp were folded into northwest quadrant.	* Provides more convenient I-29 access to planned residential / commercial growth in south Grand Forks. * Reduces 2035 traffic volumes by 5,000 to 8,000 vpd along Columbia Road north of 32nd Ave. * Reduces 2035 traffic volumes by 2,000 to 10,000 vpd along 32nd Ave west of Columbia Rd. * Requires Access Modification Request to FHWA (additional study).	* No significant impacts anticipated.	$17,500,000
1 H - Create 47th Ave S Overpass of I-29	* No significant social/R.O.W. impacts anticipated.	* No growth west of I-29 at 47th Ave, so overpass would not connect development areas on both sides. * Network connection to county road west of I-29 (currently unpaved) and potential future S 48th St (not built) offer connections to employment growth west of I-29.	* No significant impacts anticipated.	$9,000,000
1 I - Widen 42nd St to a four-lane cross-section between 17th Ave and 32nd Ave S (2030 LRTP Recommendation)	* No significant social/R.O.W. impacts anticipated.	* Would divert approximately 2,000 vpd from Columbia Road by 2035. * Consider providing on-street bicycle lanes in addition to trail extension along corridor.	* No significant impacts anticipated.	$4,700,000
1 J - Improve 34th St between DeMers Ave and 24th Ave S	* Minor R.O.W. acquisitions IF roundabout installed at 34th/24th intersection (less than 0.1 acre total). No significant impacts to park or apartment. * Approximately five (5) residential driveways along corridor - significantly lower than 20th Street.	* Add left-turn lanes at key intersections to improve through traffic flow. * Corridor has 80' wide right-of-way. * Current signalization at 17th Ave - 34th St.	* Roundabout at 34th St / 24th Ave intersection would require minor widening (less than 0.05 acres) into Lions Park.	$300,000
1 K - Construct Merrifield Road crossing of Red River (2030 LRTP Recommendation)	* Offers south bypass route for trucks, connecting I-29 south of Grand Forks to US 2 south of East Grand Forks. * Improves general system continuity between southern metro area, high growth area.	* Projected to divert approximately 2,000 vpd from Columbia Road. * In conjunction with Merrifield Road interchange, provides approximately 3,000 to 4,000 vpd diversion from Columbia Rd corridor.	* Additional environment documentation / agency review required. * Tie-in Cole Creek diversion provides flood protection benefits.	$16,900,000
1 L - Construct 32nd Ave S crossing of Red River (2030 LRTP Recommendation)	* Would reduce traffic adjacent to 4th Ave S homes, while increasing traffic adjacent to 32nd Ave S homes. * Potential acquisition of 3-4 residences.	* Projected to divert approximately 2,000 to 3,000 vpd from Columbia Road. * Diverts approximately 6,000 vpd from Point Bridge. * Already levee opening at 32nd Ave - consistent with Flood Protection objective.	* A new river crossing would require environmental documentation and agency review for approval.	$20,200,000
1 M - 17th Ave S / Columbia Rd - Add dual left-turn lanes for all approaches, add second EB and WB through lane.	* Similar impacts to Alt 1C. Minor additional widening into business on SW corner.			$2,600,000
1 N - 17th Ave S / Columbia Rd - Add NB, SB and WB right turn lanes	* To maintain current property line setback minor R.O.W. acquisition on NW and SE quadrants, minor parkland purchase < 0.1 acres	* On its own, provides LOS "E" in 2035. With Base Confirmed projects in place, provides LOS "D" in 2035.	* Potential 4f issue if ROW is acquired from park in the SE corner of this intersection.	$500,000

TABLE. Summary of Alternatives Analysis, September 3, 2007

Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective			
	Social	Engineering	Environmental	Cost Estimate
Congestion at DeMers Avenue - Washington Street Intersection				
2 A - Add eastbound through lane (2030 LRTP Recommendation)	* Current sidewalk and trail set-back, this concept would require additional (approx. 16') strip of R.O.W. acquisition. * Concept impacts Fire Station operations in northeast corner; reducing separation between the garage bays and street to approximately 40 feet. Firetrucks parked on driveway would block the trail. * Wider roadway cross sections on DeMers increase pedestrian crossing times and concerns for pedestrian safety.	* Peak hour traffic is higher today (2006) than volumes observed in 2002 for last plan update. * Intersection currently operates at LOS "F" during PM peak hour. Concept would reduce delays, but would still be a LOS "F" by 2035.	* No business acquisition would be required. Current access points could be maintained. * Minor acquisition of railroad property would be required. Property is adjacent to BNSF yard, roundhouse and turntable - possible contamination (fuel / oil) on property?	$6,200,000
2 B - Add 3rd DeMers Ave lane for both the eastbound and westbound approaches	* Would impact operations at Fire Station on Northeast corner; reducing separation between the garage bays and street to approximately 40 feet. * Wider roadway cross sections on DeMers increase pedestrian crossing times and concerns for pedestrian safety.	* Intersection currently operates at LOS "F" during PM peak hour. On its own, this improvement would reduce delays, but would still be a LOS "F" by 2035.	* Acquisition of railroad property would be required. Property is adjacent to BNSF yard, roundhouse and turntable - possible contamination (fuel / oil) on property? * No business acquisition would be required. Current access points could be maintained.	$7,800,000
2 C - Add 3rd Washington St lane for southbound traffic	* To maintain sidewalk as currently configured, would require approximately 18' strip of R.O.W. acquisition ending at 10th Ave S. * Likely three businesses would need to be acquired, significant parking / traffic circulation impacts at three other commercial properties west of Washington St.	* Currently operates at LOS "F" during PM peak hour. On its own, concept reduces delays to LOS "E" by 2035. * May require moving retaining wall north of DeMers to add through lane while maintaining SB right turn lane.	* Significant commercial impacts along Washington St south of the intersection. * Acquisition of R.O.W. at gas station in SW corner of the intersection would require additional environmental investigation.	$5,400,000
2 D - Add 3rd Washington St lane for northbound traffic	* Requires widening for 1/4 mile north of Washington; likely to University Ave. * Likely one business would need to be acquired, significant parking impacts at three other commercial properties east of Washington St corridor.	* Currently operates at LOS "F" during PM peak hour. On its own, concept reduces delays to LOS "E" by 2035. * Would require widening of Washington St underpass of BNSF rail line. NDDOT intends to reconstruct underpass at some point in the future.	* Significant commercial impacts along Washington St north of the intersection. * Acquisition of railroad property would be required. Property is adjacent to BNSF yard, roundhouse and turntable - possible contamination (fuel / oil) on property?	$2,600,000
2 E - Reconstruct as a single point urban interchange (SPUI)	* Concept requires relocating the Fire Station in the Northeast corner of the interchange. Opportunity to realign / decentralize community fire services. * Loss of Washington St access for some businesses south of Demers Ave. * Lost access point for businesses northeast of intersection, including Xcel Energy facility. Land locks parcels between grade separated roadways and railroad tracks. * Complicated construction period maintenance of traffic with poor traffic operations.	* Washington St would be lowered; several access points and at least one street (7th Ave) to the south will need to be closed. * Potential drainage issues with a depressed Washington St. * Westbound off-ramp would be about 200' downstream from the 4th Ave westbound on-ramp: very short weaving distance with negative effect on DeMers traffic flow. * SPUI intersection would operate at LOS "C" in 2035. Through traffic on DeMers would be grade-separated and have no delays.	* Railroad property acquisition would be required adjacent to BNSF yard / roundhouse - possible contamination (fuel / oil) on property? * If current south curbline is held and widening is to the north, fire station and billboard company will be acquired. * If widening is on both sides, impacts include park (4f issue), gas station and former Hardee's (now vacant). * Impacts along Washington St south of DeMers Ave due to the loss of access.	$20,000,000
2 F - Reconstruct as a split-diamond interchange with 4th Ave S	* Concept affects operations into/out of Fire Station in the Northeast quadrant; likely requires relocating facility. * Loss of access to both Washington Street and DeMers for some businesses south of Demers Ave. * Complicated construction period maintenance of traffic with poor traffic operations.	* Eastbound off-ramp and westbound on-ramp at DeMers/Washington; eastbound on-ramp and westbound off-ramp at 4th Ave S/Washington; a collector / distributor (C/D) road would be provided between each. * Eliminates short weave issue between Washington and 4th Ave associated with SPUI. * Washington St - C/D road intersections would operate at LOS "B" and "C" in 2035. Through traffic on DeMers would be grade-separated and have no delays. * Concept could use existing 4th Ave EB-on, WB-off ramps.	* Railroad property acquisition would be required adjacent to BNSF yard / roundhouse - possible contamination (fuel / oil) on property? * If current south curbline is held and widening is to the north, fire station and billboard company will be acquired. * If widening is on both sides, impacts include park (4f issue), gas station and former Hardee's (now vacant). * Impacts along Washington St south of DeMers Ave due to the loss of access.	$25,000,000

TABLE. Summary of Alternatives Analysis, September 3, 2007

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Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective			
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Congestion Along 32nd Avenue S				
3 A - 32nd Ave / 34th St: Add WB dual left-turn lanes, add SB right-turn lane and NB left-turn lane to the intersection.	* Minor R.O.W. acquisition would be required along 34th St in order to add lane and maintain sidewalk set-back. * Wider roadway cross sections increase pedestrian crossing times and concerns for pedestrian safety.	* Concept provides additional capacity for westbound left-turn movement. * Requires widening of 34th St south to accommodate the WB dual left-turn lane. * Concept improves intersection to LOS "C" in 2035 compared to LOS "E" in 2035 No Build. * Protected left-turn phases should improve safety at the intersection, which has a higher-than-expected crash rate.	* No significant impacts anticipated.	$360,000
3 B - 32nd Ave / Columbia Rd: Add dual left-turn lanes for NB and WB approaches.	* No significant impacts anticipated	* Concept provides additional capacity for these left-turn movements. * On its own, this concept would provide LOS "D" in 2035 PM peak, compared to LOS "E" in 2035 No Build. * Current center medians are wide enough to accommodate these additional left-turn lanes.	* No significant impacts anticipated.	$150,000
3 C - 32nd Ave / 38th St: Add dual NB and SB left-turn lanes and SB right-turn lane.	* R.O.W. acquisition likely avoided.	* Concept provides marginally improved traffic operations, still at LOS "D". * This improvement may not be necessary with realignment / extension of 42nd St.	* No significant impacts anticipated.	$150,000
3 D - 32nd Ave / Washington St: Add additional eastbound and westbound through lanes at the intersection.	* Minor R.O.W. impacts along Washington St in residential area.	* With signal timing adjustments, predicted 2035 average delay is 37 seconds, within 2 sec of LOS "C"/"D" threshold. This concept would improve average delay to 34 seconds. * R.O.W. east of Washington - 80'; west of Washington - 90'. * Minimal improvement in delay, relatively significant cost for improvement.	* Impact to cemetery or business in SW corner.	$1,800,000
3 E - Add loop ramps in the NW and SE quadrants, relocate the NB on-ramp in the NE quadrant of the I-29 / 32nd Ave interchange and realign 42nd St (2030 LRTP Recommendation)	* No significant impacts anticipated	* Loop ramps remove left-turn movements from 32nd Ave onto I-29, eliminating their traffic signal phases. * The realignment of 42nd St with the I-29 NB off-ramp allows for direct access to the 42nd St corridor and removes some weaving traffic from the 32nd Ave corridor. * The ramp junction with I-29 for the NB on-ramp should be moved further to the north in order to create greater separation between the consecutive NB on-ramps (AASHTO recommends a minimum of 1000'). * The lower design speed for the loop ramp in the SE quadrant could be a potential safety concern. * Requires Access Modification Request to FHWA.	* Minor ROW acquisitions required for the realignments of 42nd St and the SB off-ramp. * The realigned NB off-ramp would be located closer to the hotel in that quadrant. Potential noise and vibration concerns?	$17,500,000
3 F - I-29 / 32nd Ave interchange with NB on-ramp relocated to 42nd St.	* This is a more urban type design that some drivers may find confusing. With proper signing the new on-ramp would not be difficult to use.	* The configuration would require vehicles accessing the ramp from 32nd Ave to traverse an additional intersection. * This configuration creates greater spacing between the consecutive northbound on-ramps. * Requires Access Modification Request to FHWA.	* Acquisition of ROW to accommodate the new ramp.	$17,500,000
3 G - Widen 32nd Ave to a 7-lane cross section between I-29 and Columbia Rd or Washington St (2030 LRTP Recommendation)	* Potential loss of parking for the business in the southwest corner of 32nd Ave and Washington St. * Wider roadway cross sections increase pedestrian crossing times and concerns for pedestrian safety.	* The wider cross section would require all 32nd Ave left-turn movements to be changed to protected only operations. This could have a negative impact for traffic operations, particularly for the left-turn movements. * Concept provides LOS "D" at 32nd Ave / Columbia Rd Intersection in 2035 PM peak, compared to LOS "E" in 2035 No Build.	* No ROW impacts throughout most of corridor. At Washington St, requires ROW takes from either the cemetery on the north side of 32nd Ave or parking for a business on the south side. * Impact to cemetery or business in SW corner of 32nd Ave - Washington St.	$11,500,000

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	Social	Engineering	Environmental	Cost Estimate
1 G - Create 47th Ave S Interchange (2030 LRTP Reserved Right-of-Way)	* Impact to RV Park / Campground adjacent to 47th Ave / I-29. If SB on-ramp is folded into NW quadrant, acquisition is avoided.	* Provides direct I-29 access to planned residential / commercial growth in south Grand Forks. * Reduces 2035 traffic volumes by 5,000 to 7,000 vpd along Columbia Road north of 32nd Ave. * Reduces 2035 traffic volumes by 2,000 to 9,000 vpd along 32nd Ave west of Columbia Rd. * Requires Access Modification Request to FHWA.	* No significant impacts anticipated.	$17,500,000
3 H - Create Merrifield Rd Interchange (2030 LRTP Recommendation)	* Would remove some truck traffic from urban streets of Grand Forks and East Grand Forks	* Complements planned Merrifield Rd Bridge providing a truck relief route with a more direct I-29 - US 2 connection. * Interchange reduces 2035 traffic volumes by 2,000 vpd along Columbia Road north of 32nd Ave. * Reduces 2035 traffic volumes by 2,000 to 3,000 vpd along 32nd Ave west of Columbia Rd.	* No significant impacts anticipated.	$7,100,000
3 I - Restripe 24th Ave S as a 3-Lane Roadway, Columbia Rd to Washington Street	* Increased traffic in front of approximately 15 single-family homes, 8 apartment buildings, Bringewatt Park. * Loss of on-street parking on one side of corridor.	* Current pavement width is 44' - wide enough for 3-lanes and one lane of parking. * Center turn-lane removes turning traffic to commercial / residential drives for improved through-traffic flow. * No change to current signalized intersections at 24th Ave S / 20th St and 24th Ave S / Washington St. * Diverts approximately 2,000 trips from 32nd Ave corridor in 2035.	* Increased traffic past residences and park.	$100,000
3 J - 36th Ave as a 3-Lane Backage Road, 38th Street to Washington. * Widen 36th Ave S to 3-Lanes along current section, 34th St to 20th St * Extend 3-lane section: 1) east, from 20th St to Washington St and 2) west from 38th St to 34th St	* Increased traffic adjacent to existing homes south of 36th Ave at 31st St. * Avoid Target back driveway by moving 38th St to 34th St alignment slightly south.	* Provides Backage Road/Collector System for Commercial Development south of 32nd Ave. * Center turn-lane removes turning traffic to commercial / residential drives for improved through-traffic flow. * Future signals: 34th St / 36th Ave S, Columbia Rd / 36th Ave S, 20th St / 36th Ave S and Washington / 36th Ave S. * Diverts approximately 2,000 trips from 32nd Ave corridor in 2035.	* Current farmstead west of 36th / Washington intersection. Site will likely be redeveloped by 2035 (Land Use Concept Growth Area) - reserve 36th Ave corridor.	$3,400,000
3 K - Complete 17th Ave South Overpass of I-29, with Connection between 48th Street and 42nd Street (2030 LRTP Recommendation)	* Limited property acquisition. * Improved access to S 48th St Business Park.	* Would divert approximately 3,000 to 8,000 vpd from 32nd Ave west of Columbia Rd.	* Coulee south of 17th Ave alignment.	$5,800,000
3 L Extend 42nd St to 32nd Ave S and Move the NB I-29 On-Ramp to 42nd St	* This is a more urban type design that some drivers may find confusing. With proper signing the new on-ramp would not be difficult to use.	* NB and SB traffic entering 42nd/NB ramp intersection. SB stop control provides safe, low delay operations. * In the past, NDDOT has not approved of this type of on-ramp configuration.	* No significant impacts anticipated.	$2,300,000
3 M Extend 42ndSt to 32nd Ave S and Reconfigure NB Ramps	* NB off-ramp moved closer to businesses south of 32nd Ave, including hotel.	* Provides direct 42nd Street connection to 32nd Ave. * Reconfigured on-ramps eliminate need for second signalized intersection adjacent to new 32nd / 42nd / NB I-29 off ramp intersection. * Provide improved turn radii for trucks to / from 32nd Ave.	* No significant impacts anticipated.	$7,000,000
3 N 38th Street / 32nd Avenue: Add SB right-turn lane	* No significant impacts anticipated	* 42nd St / Alerus Center Study recommended this SB right-turn lane to address event traffic egress. * Reduced demand on 38th Street with Alternative 3M (42nd Street realignment). Reduced priority as a result.	* No significant impacts anticipated.	$200,000
3 O 34th Street / 32nd Avenue: * Add SB right-turn lane * Add Protected / Permissive Left-turns for Northbound and Southbound	* No significant impacts anticipated	* Addresses safety / operations issues identified through planning process. * Provides sufficient capacity through 2035.	* No significant impacts anticipated.	$100,000

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Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective			
	Social	Engineering	Environmental	Cost Estimate
DeMers Avenue Congestion, 5th Street (GF) to 4th Street NW (EGF)				
Transportation Systems Management: 4 A - Implement CBD Traffic Study Recommendations (Signal Removals and Signal System Interconnect)	* No anticipated impacts.	* Remove signals at: 5th St / Bruce (GF) and 4th St / 3rd Ave (EGF) * Interconnect DeMers Ave and 5th St (GF) signal systems. * Study found acceptable long-term operations with similar traffic levels.	* No significant impacts anticipated.	$500,000
24th Avenue - 34th Street and 29th Street Congestion and Safety				
Transportation Systems Management: 5 A - Reconstruct 24th Avenue - 34th Street intersection as a single lane roundabout	* Minor R.O.W. acquisitions (less than 0.1 acre total). No significant impacts to park or apartment property. * A roundabout would be considered new for region and gaining acceptance can be more difficult.	* A roundabout design reduces the number of directions of traffic a motorist needs to view when looking for a gap to enter the intersection. * A roundabout intersection design results in lower entry speeds into the intersection, reducing crash severity. * Alternative improvement would be signalization (when warranted).	* Property to the north of the current intersection is part of Lion's Park - requires minimal (less than 0.01 acres) acquired. * Minor property acquisition to the west - likely would not affect parking / garages at apartment building.	$400,000
5 B - Channelize northbound 29th St approach to restrict northbound left-turns onto 24th Avenue.	* No significant impacts anticipated	* Full northbound access maintained at mall driveway 500' west of 29th Street. * Eliminates a conflicting turn movement to improve safety. * Restricting southbound turn movements likely high impacts - significant residential / commercial businesses north on 29th Street.	* No significant impacts anticipated.	$50,000
5 C - Remove south leg of 29th Street intersection	* Less direct access to big-box retail on SE corner of intersection (for lease).	* Reduces conflicts for southbound left-turning traffic. * Northbound access to 24th Ave available at driveway 500' west of 29th Street.	* No significant impacts anticipated.	$10,000
5 D - Provide a traffic signal for the 29th Street intersection	* No significant impacts anticipated * A traffic signal must be warranted before installation.	* A traffic signal should help alleviate many of angle crashes experienced at this intersection. * Resulting signalized intersection spacing between this intersection and the Columbia Rd / 24th Ave intersection is approximately 500'.	* No significant impacts anticipated.	$200,000
Bygland Road Congestion / Access				
Transportation Systems Management: 6 A - Add left-turn lanes at key intersections.	* Bygland R.O.W. is approximately 150' wide south of 6th Street, 100' wide north of 6th Street - limited impacts.	* Reduces peak hour delays by separating the majority of left-turning traffic on Bygland from through traffic.	* No significant impacts anticipated.	$500,000
6 B - Restripe as a 3-lane cross-section	* Maintains access to all drives / streets.	* Reduces peak hour delays by separating all left-turning traffic on Bygland from through traffic.	* No significant impacts anticipated.	$500,000
6 C - Consolidate minor street accesses along Bygland.	* Would increase traffic adjacent to some residences, reduce traffic adjacent to other residences. * Reducing access point density typically improves corridor safety.	* Focuses traffic turning onto Bygland to a smaller set of intersections. * Signals or roundabouts may be warranted at some of the remaining intersections, allowing easier access onto Bygland.	* Minor increase in out-of-direction travel.	$500,000

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North-South Continuity through East Grand Forks				
System Expansion: 7 A - Implement Central Spine Concept, Option 4. Provide a 2nd Ave NE grade separation with BNSF mainline (2030 LRTP Recommendation)	* Limited social impacts compared to other grade separation options. * Public input during "Grade Separation Study" was decidedly opposed to R.O.W. acquisitions.	* Provides East Grand Forks reliable north - south corridor by eliminating traffic delays from BNSF trains. * 9 Trains a day	* Concept is consistent with public option found in Grade Separation Study's public outreach program - at that time there was opposition to concepts that involved residential property acquisitions.	$11,800,000
DeMers Avenue Congestion, 48th Street to beginning of 4-Lane Section				
Transportation Systems Management: 8 A - Signalize 48th / DeMers and SB I-29 / DeMers	* Improves heavy truck access to industrial park.	* Provides sufficient operations / access into industrial park. Without improvements, unsignalized traffic operations degrade to LOS "F" by 2035. * Signal should meet warrants before installed.	* No significant impacts anticipated.	$700,000
System Expansion 3 K - Complete 17th Ave South Overpass of I-29, with Connection between 48th Street and 42nd Street (2030 LRTP Recommendation)	* Limited property acquisition.	* Would divert approximately 2,000 to 5,000 vpd from DeMers Ave west of 42nd St.	* Coulee south of 17th Ave alignment.	$5,800,000
University Avenue corridor through UND Campus				
Implement University Ave Traffic Calming Study 9 A - Median extended to Stanford Rd, Median Closures, Crosswalk Consolidation, Consistent Signage, Curb Extensions, Remove Pedestrian Flashers, Mark Bicycle Lanes	* Improve pedestrian safety in corridor. * Potential to beautify campus corridor.	* Three (3) pedestrian-vehicle crashes in University corridor over 2003-2005 analysis period. * Consolidates pedestrian crossings, vehicle turning locations to reduce conflict points.	* No significant impacts anticipated.	$900,000
Access to Businesses south of 32nd Avenue to / from Columbia Road				
New Traffic Signal: 10 A - Signalize 36th Ave S - Columbia Rd intersection, Convert Wal-Mart / SuperOne Foods Driveways at Columbia to 3/4 Access (no left turns out)	* Improved 36th Ave provides backage roadway - benefits access into / out of retail area.	* Improved signal spacing at 1/4 mile, but not consistent with guidance for Columbia Rd - 1/2 mile signal spacing. Spacing consistent with Columbia Rd north of 32nd Ave. * Enhances concept to provide effective east-west backage road at 36th Ave S. * 3/4 Access at commercial drives improves safety * Signal should meet warrants before installed.	* No significant impacts anticipated.	$300,000
4th Avenue South Through Traffic Concerns				
System Expansion 1 L - Construct 32nd Ave S crossing of Red River (2030 LRTP Recommendation)	* Would reduce traffic adjacent to 4th Ave S and Belmont Rd homes, while increasing traffic adjacent to 32nd Ave S homes.	* Projected to divert approximately 2,000 to 5,000 vpd from 4th Ave S corridor by 2035. * Current plan is to construct 32nd Ave S bridge after completion of the Merrifield Rd bridge.	* A new river crossing would require environmental documentation and agency review for approval.	$20,200,000
High Crash Rate at 11th Avenue - 14th Street Intersection				
Transportation System Management 13 A - Remove on-street parking adjacent to intersection.	* Anticipated to reduce crashes at intersection.	* Low volume intersection with 11 crashes during 2003 - 2005 period. 600 vpd on 11th Ave, 1900 vpd on 14th St. * Current configuration is Northbound-Southbound free movements, Eastbound-Westbound stop-controlled. * On-street parking at intersection has some impact on drivers' view.	* No significant impacts anticipated.	Minimal
High Crash Rate at Gateway Drive / Central Avenue Intersection				
14 A - Implement Gateway Drive Access Management Study Recommendations (2030 LRTP Recommendation)	* Diverts locally-generated traffic to new access points at 5th Ave NW and 2nd Ave NE.	* New signal-controlled intersections would be coordinated with Central Ave intersection. * On its own, 5th Ave intersection diverts 3,000 vpd from north leg of Central Ave - Gateway Dr in 2035. * Acceptable intersection operations through 2035.	* No significant impacts anticipated.	$200,000

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Public Identified Safety Issue: Gateway Drive / 5th Street Intersection and Rail Crossing				
15 A - Provide additional lane striping and gates warning stopped vehicles to stay off of tracks	* Could reduce potential for auto-train crashes at this crossing.	* 5th St - Gateway intersection and rail crossing are less than 100' apart. * Rail line carries 3 trains / day. 2005 ADT: 24,700 vpd * Current cantilever lights and additional flashing sign provide significant warning to autos of approaching trains. * Average train operating speed is less than 10 mph.	* No significant impacts anticipated.	$200,000
Public Identified Safety Issue: University Ave - BNSF Rail Crossing west of 9th Street				
16 A - Provide flashing signals as advance train crossing warning	* Flashing rail signals could provide a more safe rail crossing to vehicular and pedestrian traffic.	* Rail line carries 3 trains / day. 2005 ADT: 5,000 vpd * No reported crashes over 2003 to 2005 analysis period * Average train operating speed is less than 10 mph.	* No significant impacts anticipated.	$200,000
Truck Traffic Related to East Grand Forks Potato and Sugar Beet Plants				
17 A - Improve access to plants from Highway 2 (East of Plant).	* Would reduce heavy truck traffic on residential streets including 5th Ave E.	* 5th Street has recently been improved to handle high truck volumes. * Alternatives that orient truck traffic to east of plants would require out-of-direction travel for many trucks. * Requires compliance by trucks accessing plants. * Truck restrictions not allowed on MnDOT - funded roads. * Most truck trips originate from north MN 220 or US 81. * Delivery operations at SW corner of property, away from US 2	* No significant impacts anticipated.	$4,500,000
17 B - Alter 5th Ave NE to avoid crossing Strauss Park ball fields / parking lots.	* Allows safe pedestrian access between parking lot (east of current 5th Ave) and Strauss Park.	* Realign 5th Ave E to east of Strauss Park parking lots.	* No significant impacts anticipated.	$1,800,000
17 C - Redevelop Strauss Park to place parking lots west of 5th Ave.	* Eliminates need for pedestrians to cross 5th Ave. * Potential to displace some park uses at this location.	* Consider converting current skating rink area to parking, placing seasonal skating rinks on parking lot in Winter.	* Depending on redevelopment scenario, may need to re-site some park uses.	Low to Moderate
17 D - Seasonal Signalization of the 5th Avenue NE – Business 2 intersection.	* Allows gaps for SB traffic to enter Business 2, thus encouraging trucks to use 5th Ave NE and not other corridors in East Grand Forks.	* Can be concerns about temporary / seasonal signalization. Would require message signs prior to deployment notifying drivers of control change. * Delays for seasonal SB truck traffic not believed to be significant -- might have little impact on route selection.	* No impacts.	$200,000
17 E - New North-South Access Road Connecting 10th Street NE to Crystal Plant	* Diverts Crystal truck traffic from 5th Ave NE south of 10th St, reduces traffic adjacent to approx. 15 residences.	* Narrow available corridor on Crystal property between lagoons and rail line. * Difficult soils, adjacent lagoons require reinforced roadway base and storm sewers.	* No significant impacts anticipated.	$3,300,000
Future Congestion Along Current Rural, Two-Lane Roadways				
As development occurs, widen rural, two-lane roadways: 18 A - Widen 32nd Ave: 48th St to 52nd St to a 4-Lane Divided roadway 18 B - Widen Columbia Rd: 34th Ave to 50th Ave to a 4-Lane Divided roadway 18 C - Widen Washington St: 47th Ave to 55th Ave to a 4-Lane Divided roadway 18 D - Widen 47th Ave South: Columbia Rd and Washington St to 3-Lane roadway 18 E - Widen Central Ave: Widen/Restripe to 4-Lane Divided between 17th St and 23rd St, Widen to 3-Lane roadway 23rd St to Dike	* Provide sufficient capacity to 25+ year growth areas. * Development driven; specifics of improvements determined by development timing and location of	* Provides acceptable traffic operations through 2035. * Provides consistent design with adjacent urbanized roadway segments * Arterial intersections in development area will require signalization and added turn lanes over planning horizon.	* No significant impacts anticipated.	18A - $1,100,000 18B - $5,300,000 18C - $2,900,000 18D - $2,900,000 18E - $4,000,000

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Issue / Improvement Concept/ Elements	Evaluation Criteria Perspective			
	Social	Engineering	Environmental	Cost Estimate
New Red River Crossings				
1 K - Construct Merrifield Road crossing of Red River (2030 LRTP Recommendation)	* Offers south truck relief route, connecting I-29 south of Grand Forks to US 2 south of East Grand Forks. * Improves general system continuity between southern metro area, high growth sector.	* Preliminary forecasted to attract between 3,000 and 5,000 vpd in 2035. * In conjunction with Merrifield Road interchange, provides some diversion of traffic from 32nd Ave S and Columbia Rd corridors.	* Additional environment documentation / agency review required. * Tie-in Cole Creek diversion provides flood protection benefits.	$16,900,000
1 L - Construct 32nd Ave S crossing of Red River (2030 LRTP Recommendation)	* Would reduce traffic adjacent to 4th Ave S homes, while increasing traffic adjacent to 32nd Ave S homes. * Diverts traffic from 4th Ave S/Point Bridge neighborhood.	* Projected to divert approximately 2,000 to 5,000 vpd from 4th Ave S corridor by 2035. * Preliminarily Projected to attract approximately 4,000 to 6,000 vpd to 32nd Ave S between Washington and Belmont.. * Current plan is to construct 32nd Ave S bridge after completion of the Merrifield Rd bridge. * Improves system continuity by connecting south Grand Forks and south East Grand Forks; both high-growth areas through planning horizon.	* A new river crossing would require environmental documentation and agency review for approval.	$20,200,000
DeMers / 42nd Street Grade Separation				
Grade Separate 42nd Street from BNSF Rail Line (2030 LRTP Recommendation): 19 A - Maintain access between DeMers and 42nd via Interchange	* Some R.O.W. impacts with University property. * Improves reliability of access to UND campus, travel along 42nd St.	* Eliminates train delays for 42nd Street traffic.	* No significant impacts anticipated.	$16,900,000
Identified Issue with Agricultural Freight Movements through Community				
23 A - Create East-West Bypass Corridor on North Fringe of Grand Forks - East Grand Forks Urban Area (North Bypass / Truck Relief Route)	* Represents longer travel distances; can be difficult to encourage out-of-direction travel. * No anticipated acquisitions of houses or businesses.	* Provides direct bypass route for traffic to/from I-29 north of GF to US 2 east of EGF and US 2 through traffic. * Concept does not directly address any identified capacity deficiencies.	* 27th Ave N / 23rd St N alignment would impact EGF golf course. * A new river crossing would require environmental documentation and agency review for approval. * Requires conversion of agricultural land.	$42,000,000 to $55,000,000
3H, 1K - Construct Merrifield Road / I-29 interchange and Merrifield Rd crossing of Red River (South Truck Relief Route - 2030 LRTP Recommendations)	* Offers south truck relief route, connecting I-29 south of Grand Forks to US 2 south of East Grand Forks.	* Preliminary forecasted to attract 5,000 to 14,000 vpd in 2035. * Predicted to divert 2,000 - 4,000 vpd from 32nd Ave S. * Predicted to divert 500 - 2,000 vpd from DeMers Ave. * Predicted to divert 1,000 - 2,000 vpd from Gateway Dr.	* Additional environment documentation / agency review required.	$24,000,000
Sight-Distance / Truck Acceleration Concern for Northbound I-29 DeMers On-Ramp				
20 A - Minor widening of I-29 NB to accommodate longer acceleration lane from DeMers Ave Ramp.	* Issue raised by trucking industry representative during involvement process.	* Increased acceleration lane length should allow increased truck speeds, further distance from crest of hill during merge. * Widen I-29 NB for an additional 400 - 600 feet.	* No significant impacts anticipated.	$150,000
Congestion at 17th Avenue - Washington Street Intersection				
Transportation Systems Management: 21 A - Convert current turn lane for frontage road into second eastbound turn lane for Washington, eliminate eastbound left-turns onto frontage road. Sign one block of 14th St as backage access to frontage road.	* Loss of direct access to frontage road from EB 17th Ave S. Increased traffic volumes on 14th Street between 17th Ave S and 16th Ave S - 8 single-family homes and an apartment building. * No change in R.O.W. or pavement width.	* Provides dual eastbound left-turns onto Washington Street with out widening into business parcel to the south. * Concept provides LOS "C" during PM peak for 2035.	* Increased traffic volumes past homes on 14th Street between 17th Ave S and 16th Ave S.	$50,000