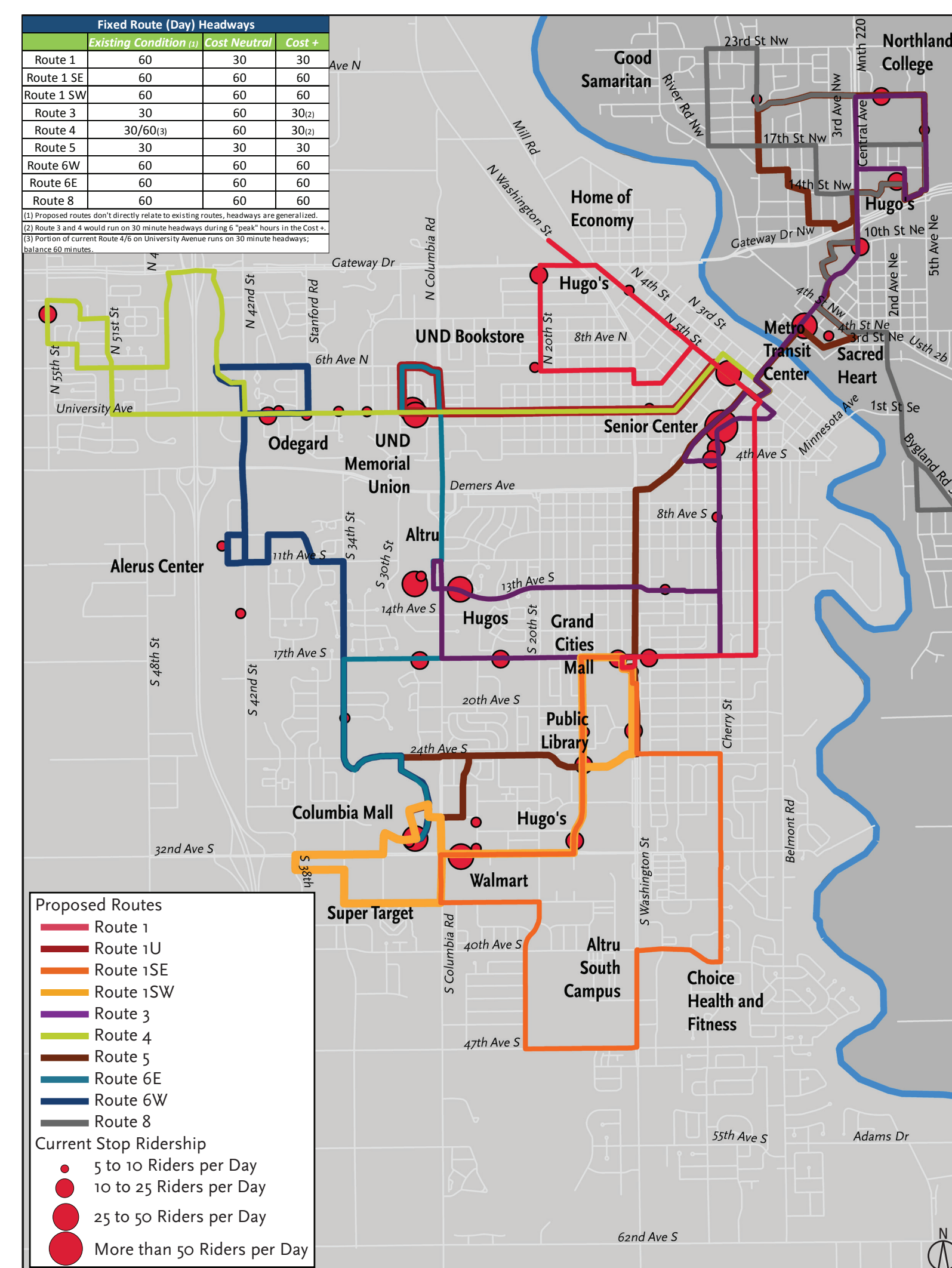


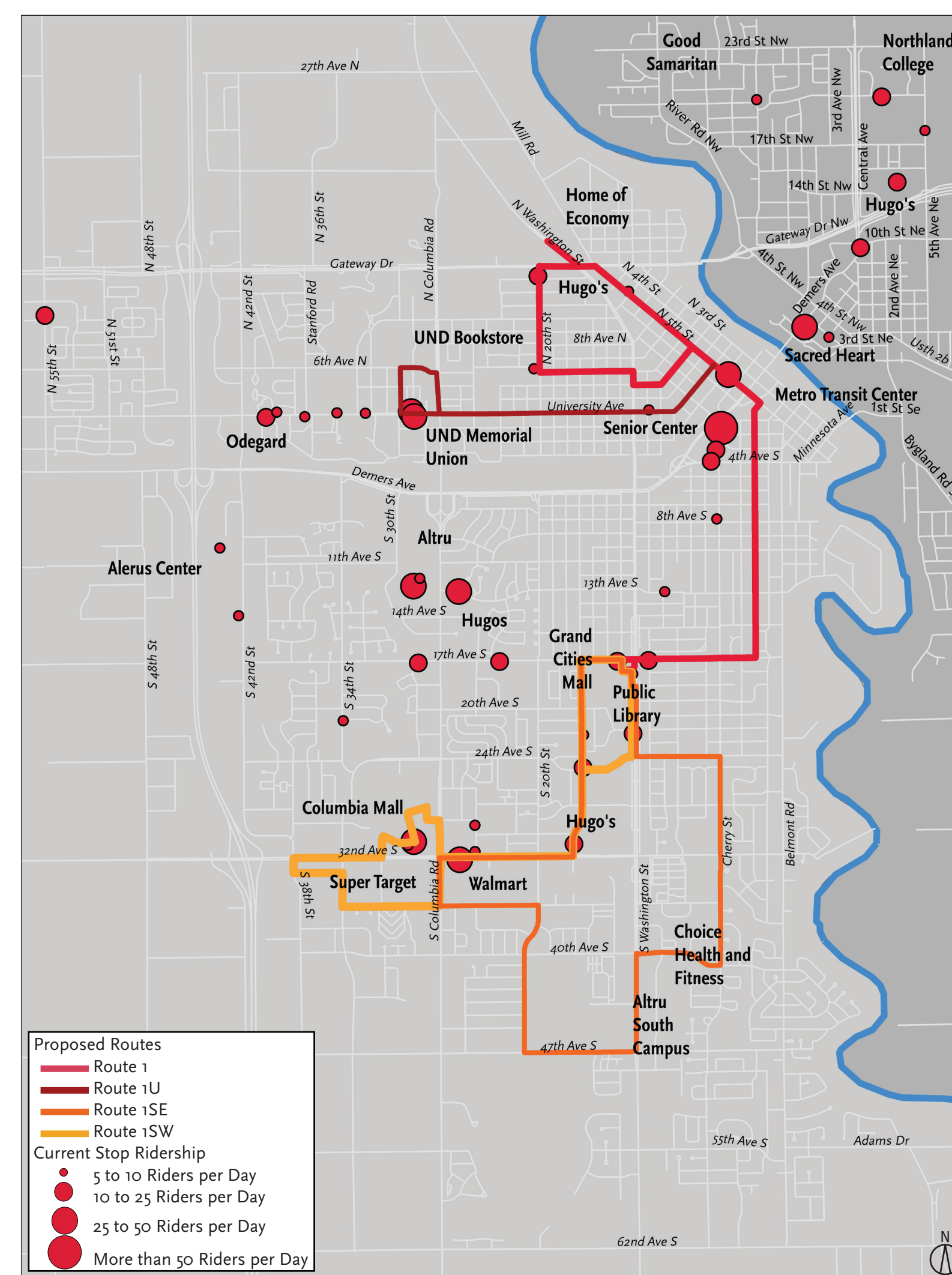
Transit Development Plan Update

OPERATIONAL ANALYSIS-FREQUENCY

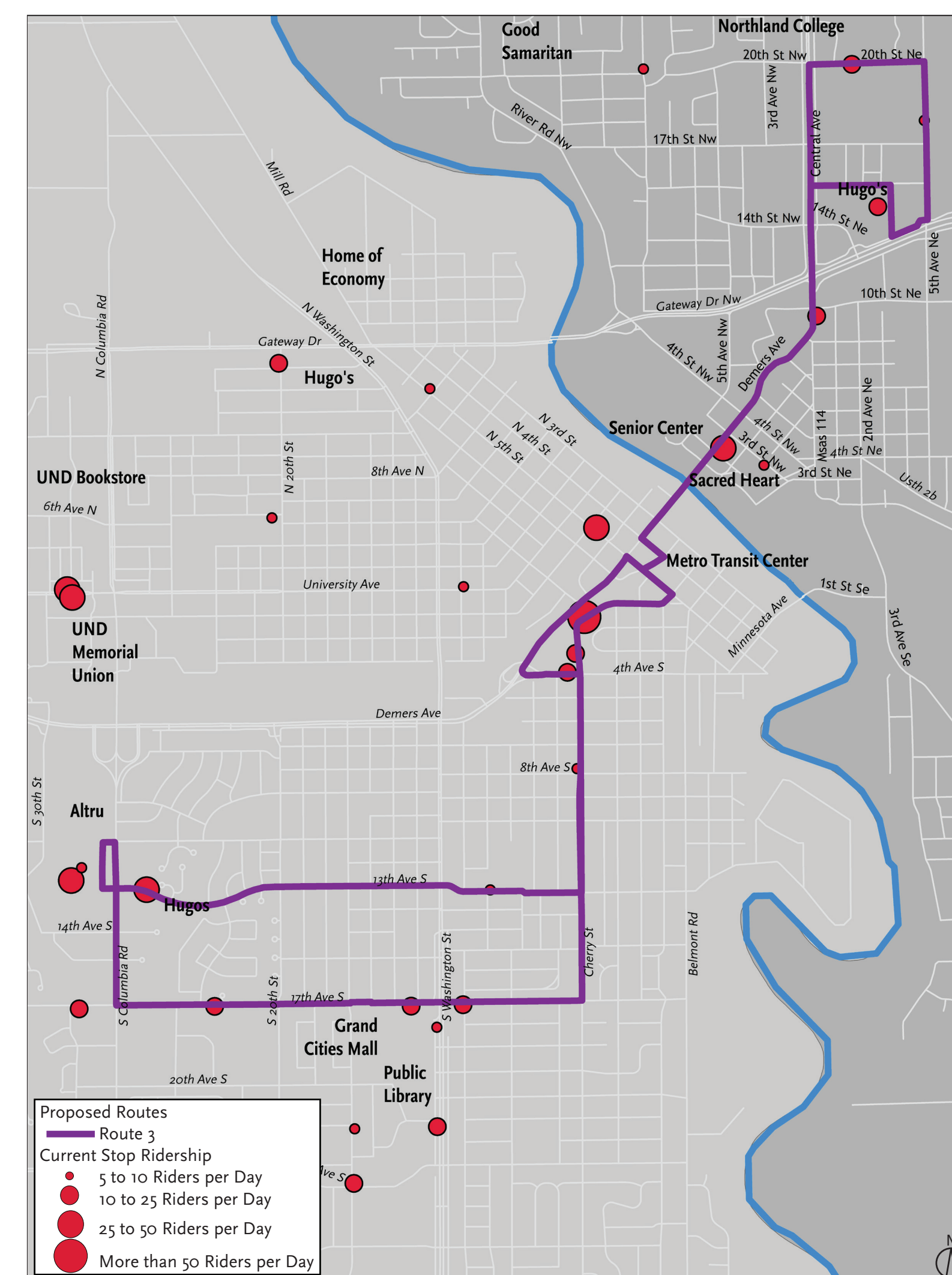
COST CONSTRAINED SCENARIO LEVEL OF SERVICE		
Route	Weekday/ Saturday Headway	Weeknight/ Saturday Night Headway
Route 1/1U	60	75-90
Route 1SE	60	-
Route 1SW	60	75-90
Route 3	60	60
Route 3 (EGF)	60	60
Route 4	30/60*	-
Route 5	60	-
Route 5 (EGF)	60	X
Route 6W	60	75-90
Route 6E	60	75-90
Route 8	45**	-
Peak Vehicles	8	2



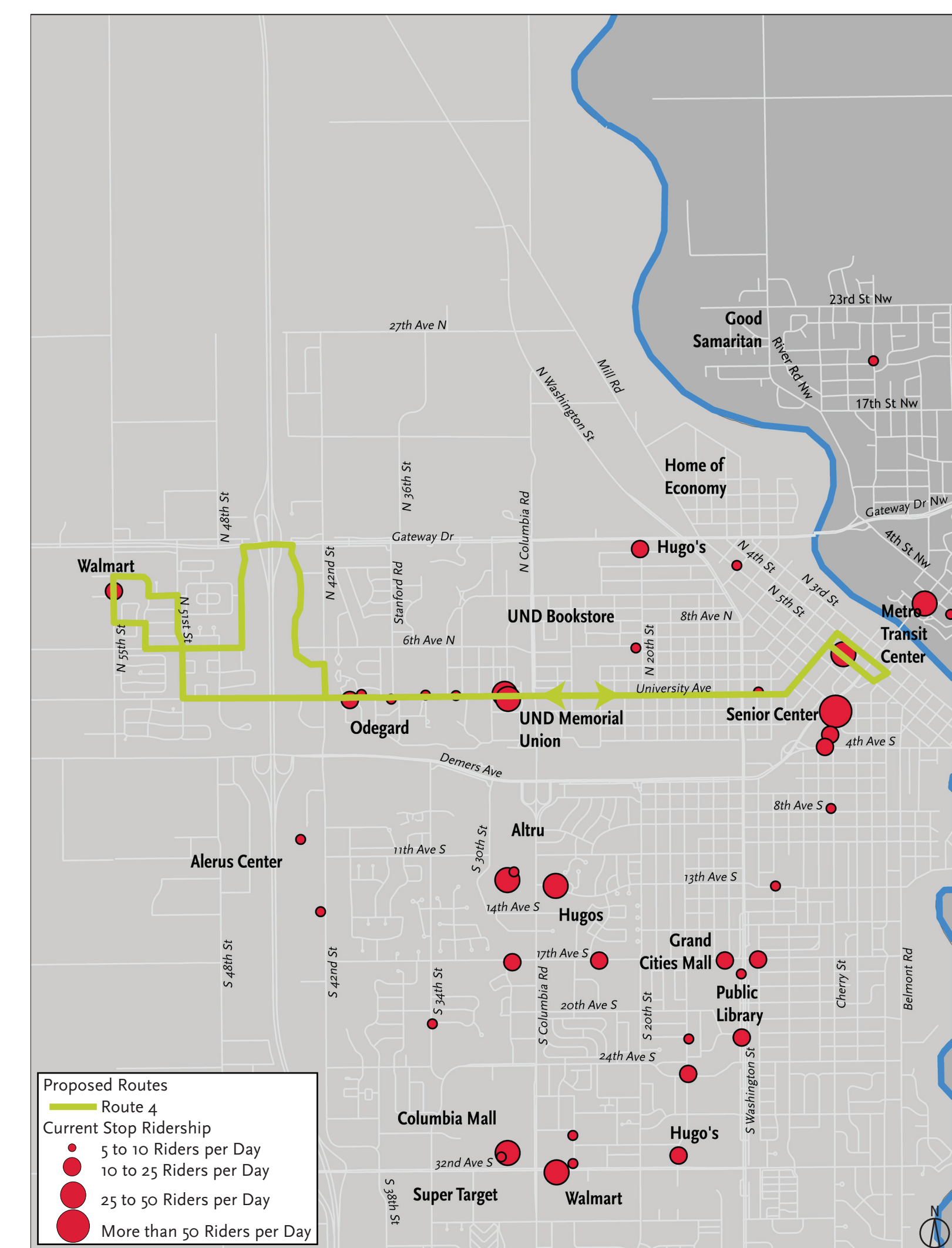
Fixed Route Alternatives, Day



Proposed Routes 1, 1U, 1SE, and 1SW



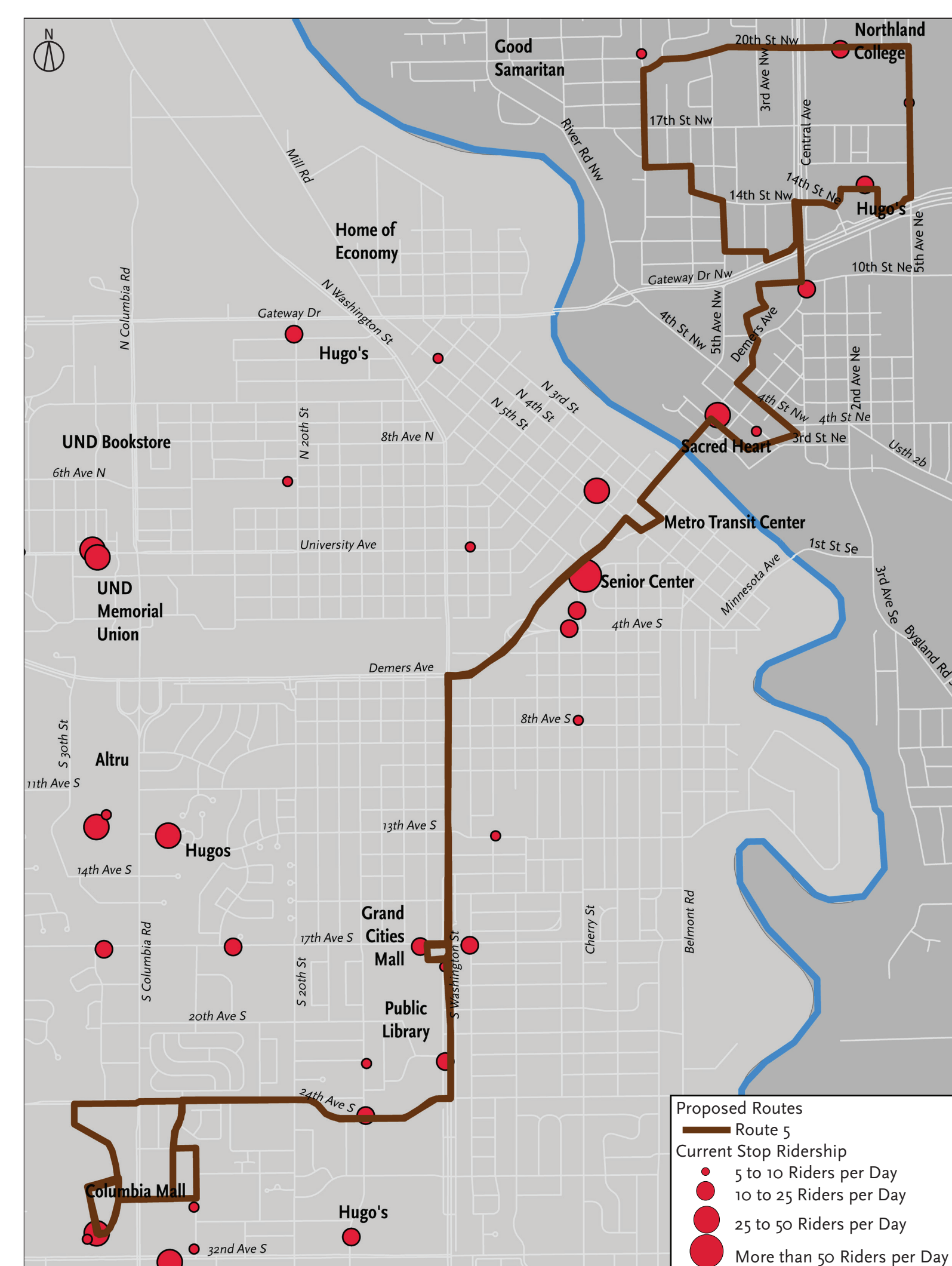
Proposed Route 3



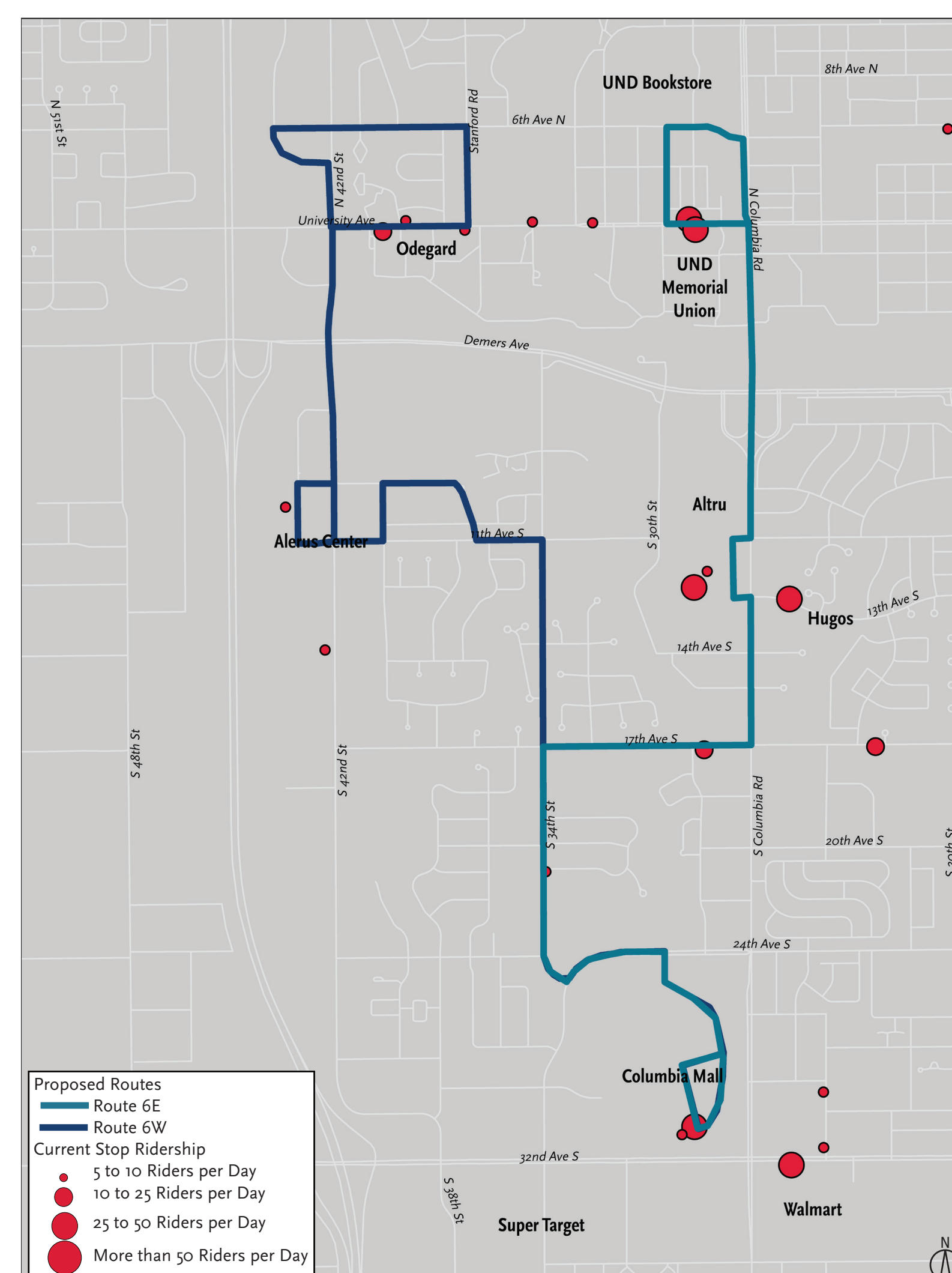
Proposed Route 4

* Route 4: 30 Minute Peak Hour; 60 Minute off peak
** Route 8: 45 Minute Peak hour

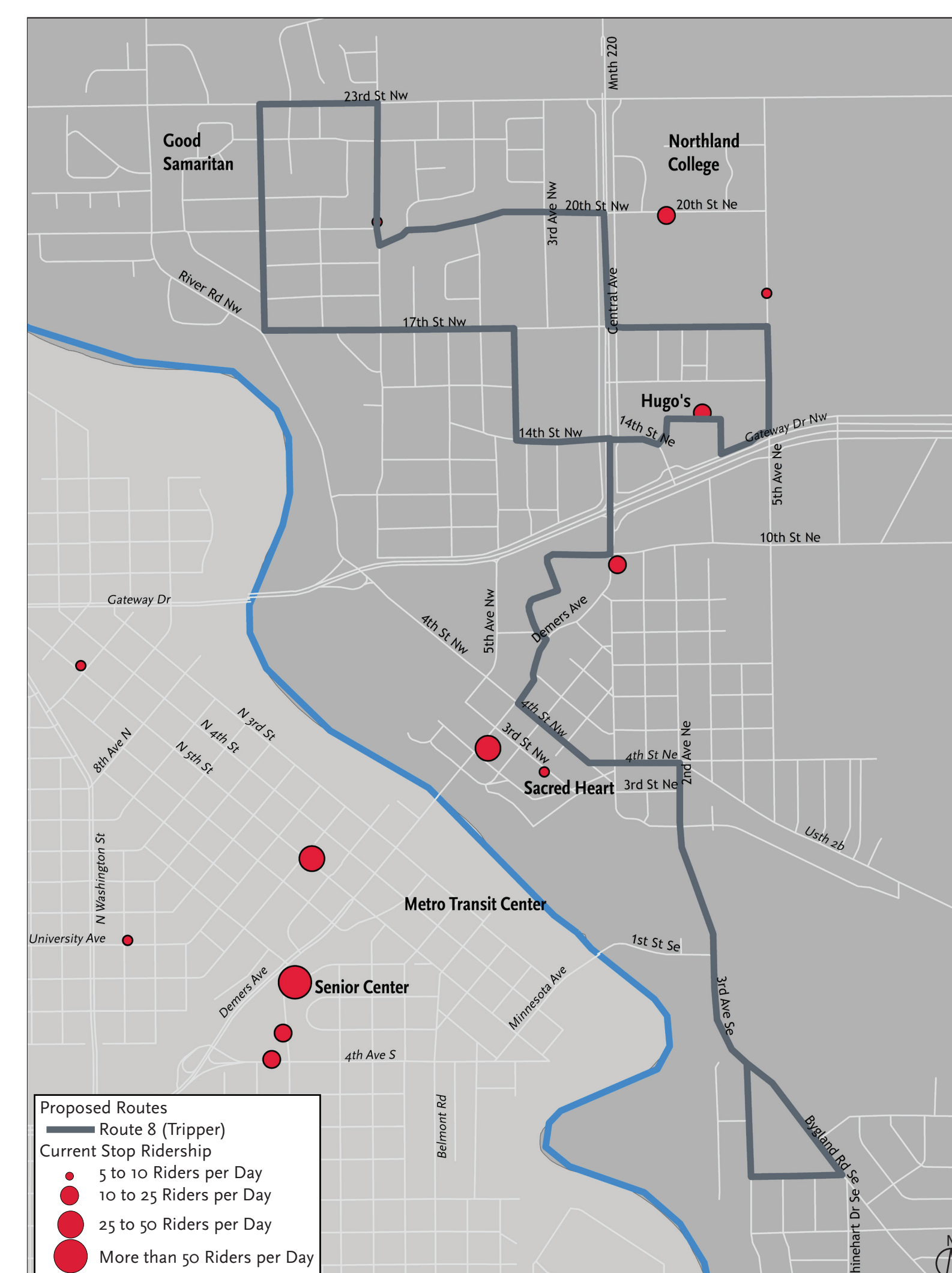
COST + SCENARIO LEVEL OF SERVICE		
Route	Weekday/ Saturday	Weeknight/ Saturday Night
Route 1/1U	30	60
Route 1SE	60	-
Route 1SW	60	60
Route 3	30/60*	60
Route 3 (EGF)	60	60
Route 4	30/60*	-
Route 5	30/60*	-
Route 5 (EGF)	60	-
Route 6W	60	60
Route 6E	60	60
Route 8	45**	-
Peak Vehicles	9	4



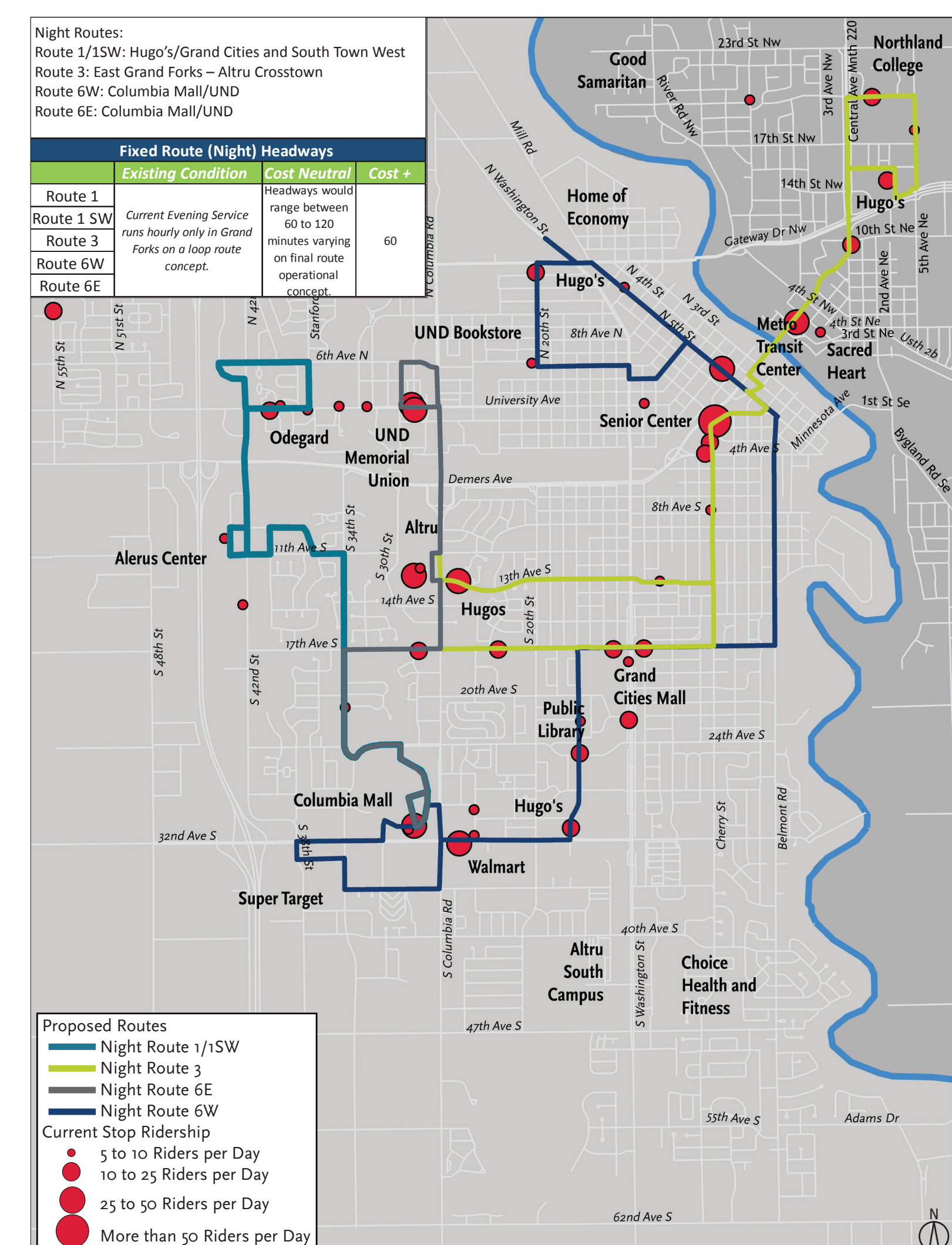
Proposed Route 5



Proposed Routes 6E and 6W



Proposed Route 8 (Tripper)



Fixed Route Alternatives, Evening

* Route 3/4/5 - 30 Minute Peak Hour; 60 Minute off peak
** Route 8 - 45 Minute Peak hour

Transit Development Plan Update

Proposed Route Structure – Future Level of Service Needs

The new route structure for CAT looks to improve system operations and boost ridership. The system is scalable to improve levels of service as system expansion becomes feasible. The TDP has developed two scenarios for consideration as part of the TDP update. One is Cost Neutral and the second requires a limited level of new investment in the CAT system, shown as Cost +.

COST NEUTRAL SCENARIO

- » Focuses on Improved Route Structure
- » Better Cross-town connections north-south (new Route 1) and east-west (new Route 3)
- » Reduction to 60 minute headways on several Routes such as Route 3 and Route 4

- » Maintains 30 minute headways from Downtown to Columbia Mall (Route 5)
- » Improves connections from UND To Columbia Mall (new Route 6)

COST NEUTRAL FIXED ROUTE ALTERNATIVES – DAY SERVICE			
Existing Condition			
	Total	GF	EGF
Revenue Hours	24,123	20,769	3,355
Peak Vehicles	7	6	1
Proposed Day Route Structure (Cost Neutral)			
	Total	GF	EGF
Revenue Hours	25,574	21,020	4,554
Peak Vehicles	8	6	2
New Investment			
Revenue Hours	1,451	251	1,200
New Operating Cost (\$95/hr)	\$137,807	\$23,874	\$113,953
Vehicles	0	No Rolling Stock Needed	
New Capital Cost	\$0	\$0	\$0
Total New Cost (Day)	\$137,807	\$23,854	\$113,953

Proposed Fixed Route – Day

The proposed fixed route day system is comprised of nine routes within the CAT service area. Similar to the current alignment some interlining is necessary, however the proposed aims to better connect critical destinations.

COST + SCENARIO (RECOMMENDED SERVICE PLAN)

- » Focuses on Improved Route Structure
- » Similar new route alignment features as Cost Neutral Scenario
- » More investment in 30 minutes headways on new Route 3 and Route 4

COST + FIXED ROUTE ALTERNATIVES – DAY SERVICE			
Existing Condition			
	Total	GF	EGF
Revenue Hours	24,123	20,769	3,355
Peak Vehicles	7	6	1
Proposed Day Route Structure (Cost +)			
	Total	GF	EGF
Revenue Hours	27,092	22,538	4,554
Peak Vehicles	9	7	2
New Investment			
Revenue Hours	2,969	1,769	1,200
New Operating Cost (\$95/hr)	\$282,017	\$168,065	\$113,953
Vehicles	1	Covered by MnDOT 2018 Purchase	
New Capital Cost	\$0		
Total New Cost (Day)	\$282,017	\$168,065	\$113,953

Proposed Fixed Route – Evening

The proposed fixed route evening service is composed of four routes. The proposed evening system looks to keep the same structure as the day routes. The goal is to provide a consistency system day and night to key destinations.

Performance Management Plan

CAT is now required to develop a performance based plan to meet Federal requirements. System performance measures have been set for a number of operational variables of CAT. Shown below are those performance measures most related to level of service.

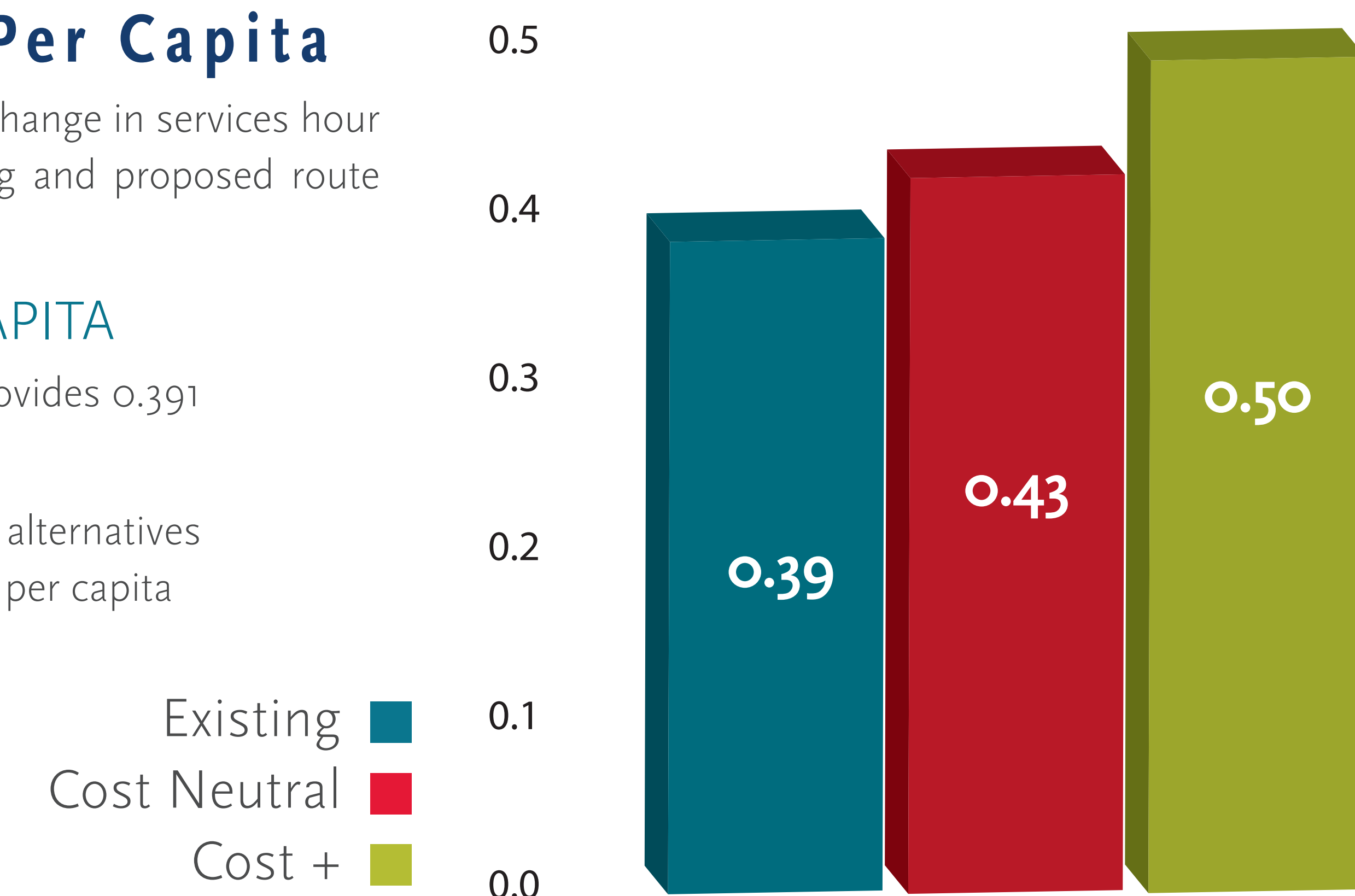
FIXED ROUTE PERFORMANCE MEASURES			
Performance Measure	Performance Level	CAT System Performance	CAT – EGF Performance
Span of Service	18 hours a day for six days a week.	15.5 Hours	11.5 Hours
Service Frequency	30 minute headways on 40% of routes.	16%	0%
Service Availability	75% of the service area population within ¼ mile of transit route.	89%	83.5%
Service Hours per Capita	0.56	0.39	0.39

Revenue Hours Per Capita

The figure below measures the change in services hour per capita based on the existing and proposed route system.

SERVICE HOUR PER CAPITA

- » Existing fixed route system provides 0.391 service hours per capita
- » Both Cost Neutral and Cost + alternatives provide greater service hours per capita



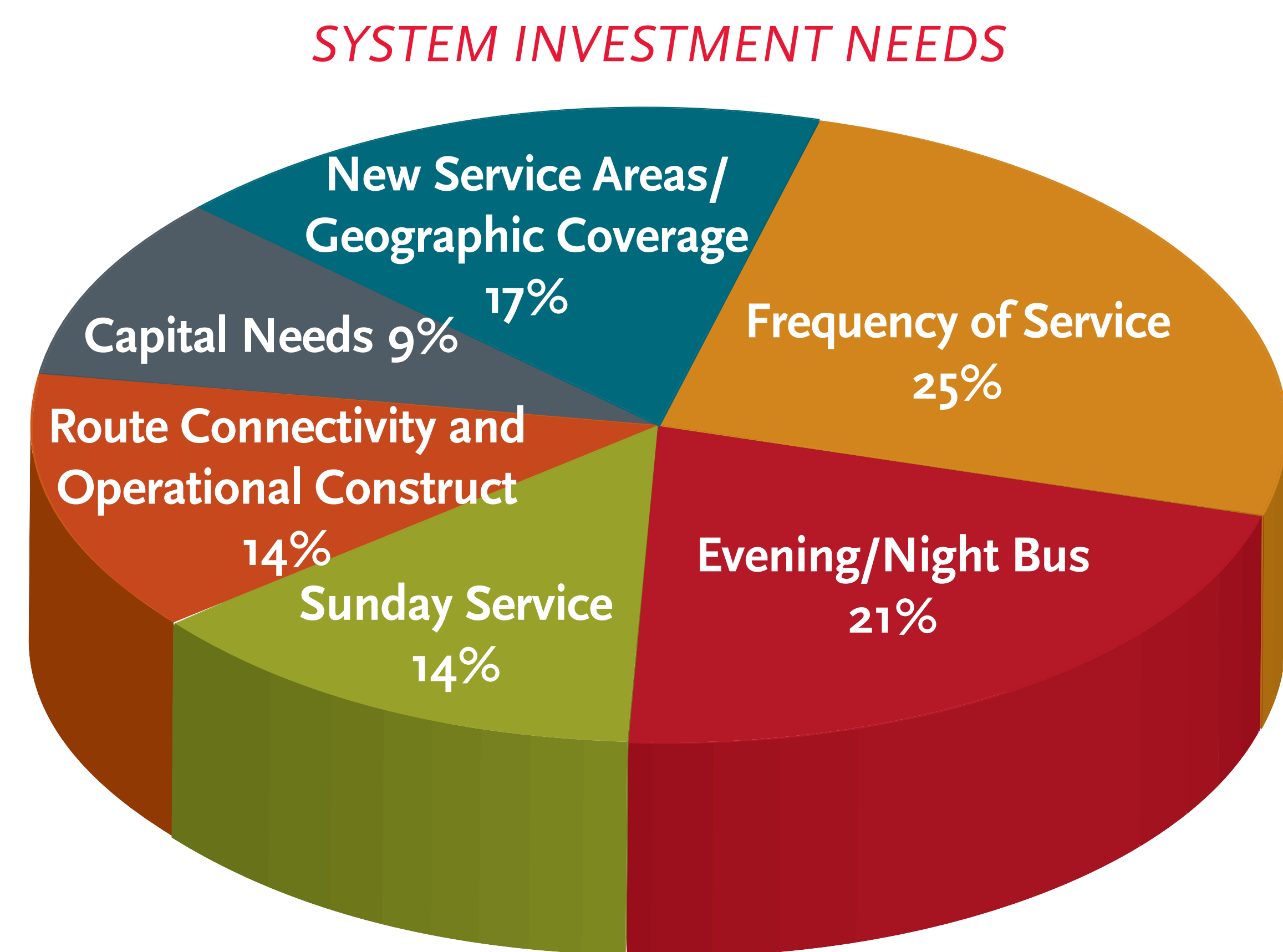
Transit Development Plan Update

Prioritizing Needs and Issues

As part of developing the TDP update, public input and guidance from a project steering committee have been used to assist in determine how best to invest in future public transit service in the Grand Forks-East Grand Forks area.

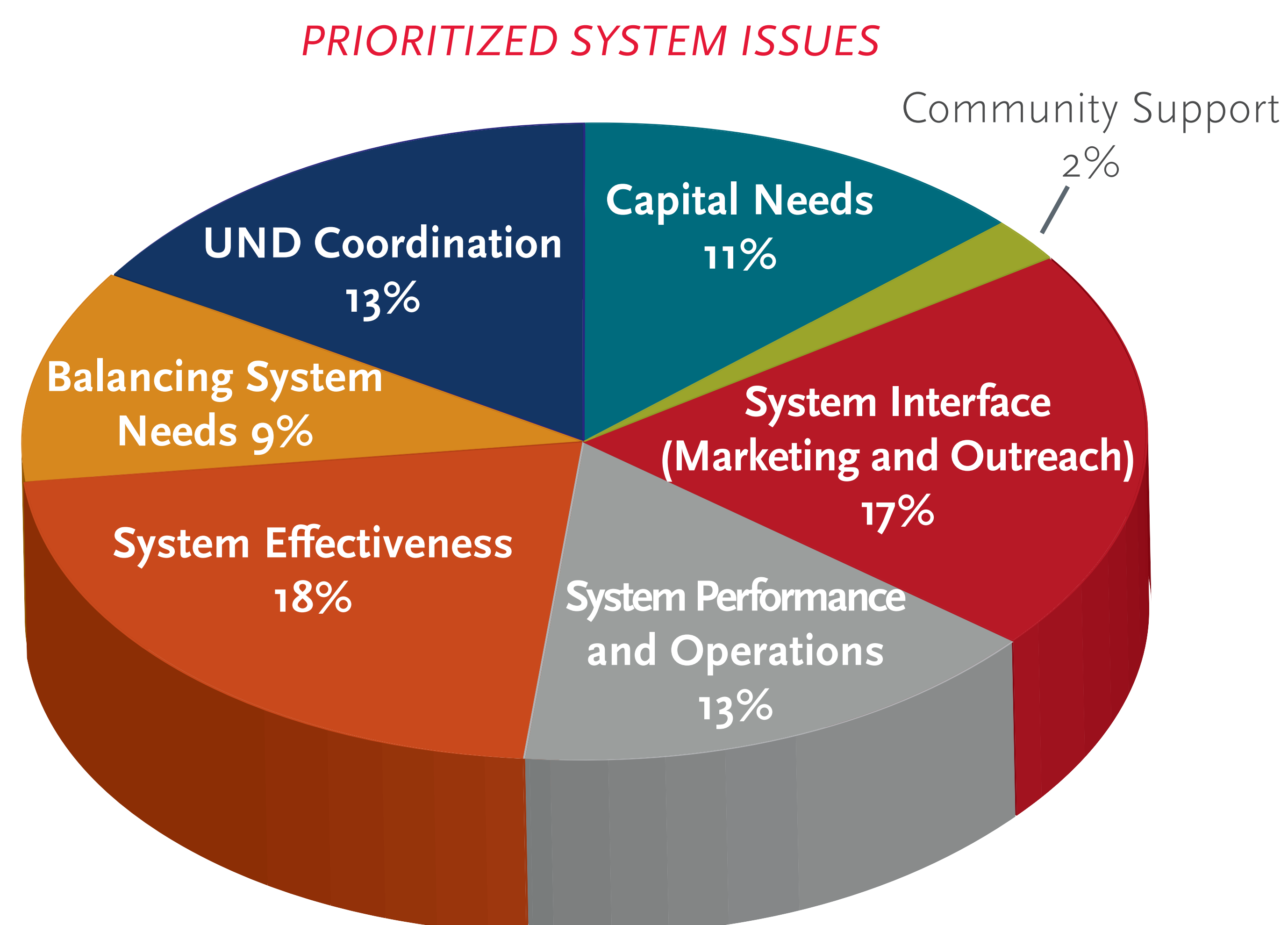
SYSTEM INVESTMENT NEEDS

Based on input from the public and the project steering committee, the TDP update is focusing its efforts on a range of possible investment areas. The chart below shows system investment priorities for the TDP update.



PRIORITIZED SYSTEM ISSUES

The issues in the chart below were identified through the early stages of the TDP update. As the service strategies are developed, these issues were prioritized to assist in guiding future investment into the CAT system.

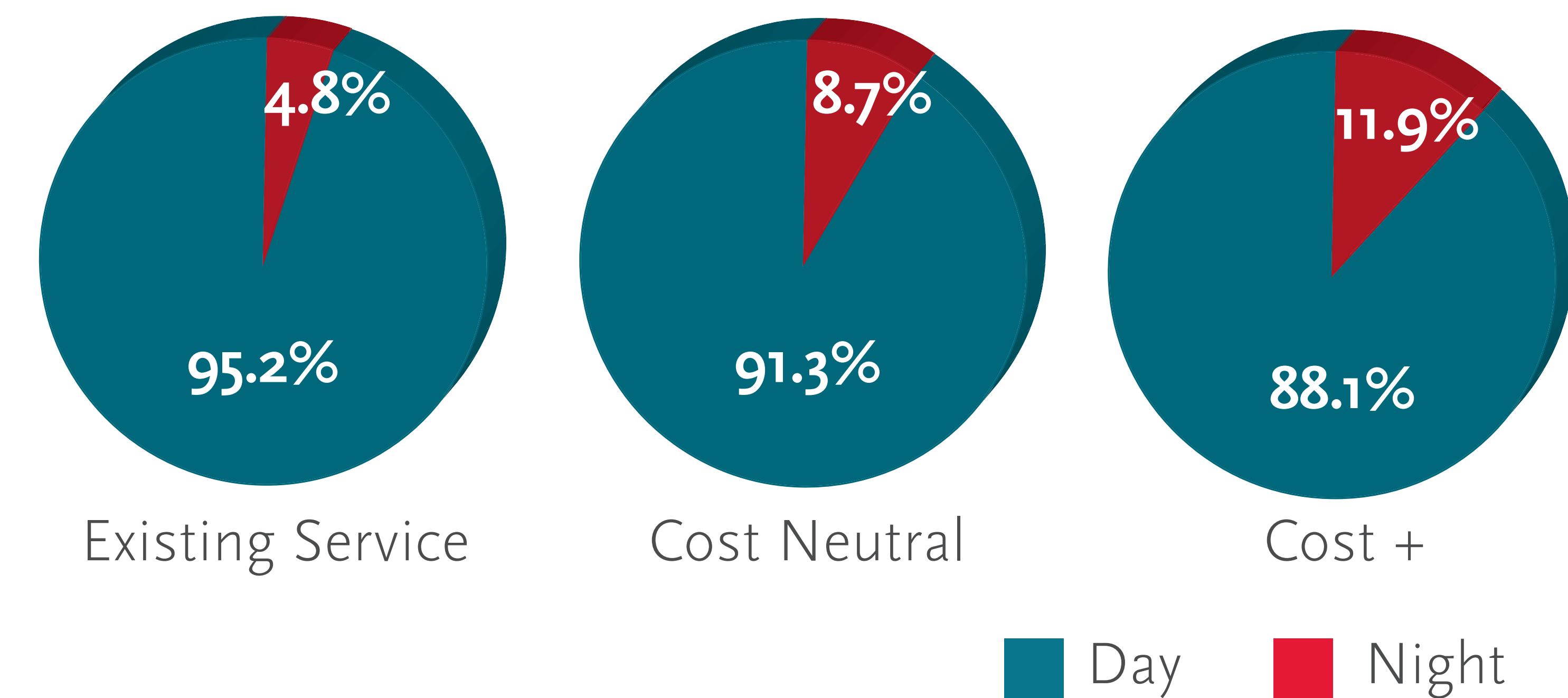


Projected Investments – Fixed Route Service

As part of the measuring the general fluctuation in investments in the CAT Fixed Route System, proposed new service alternatives are compared against the existing condition.

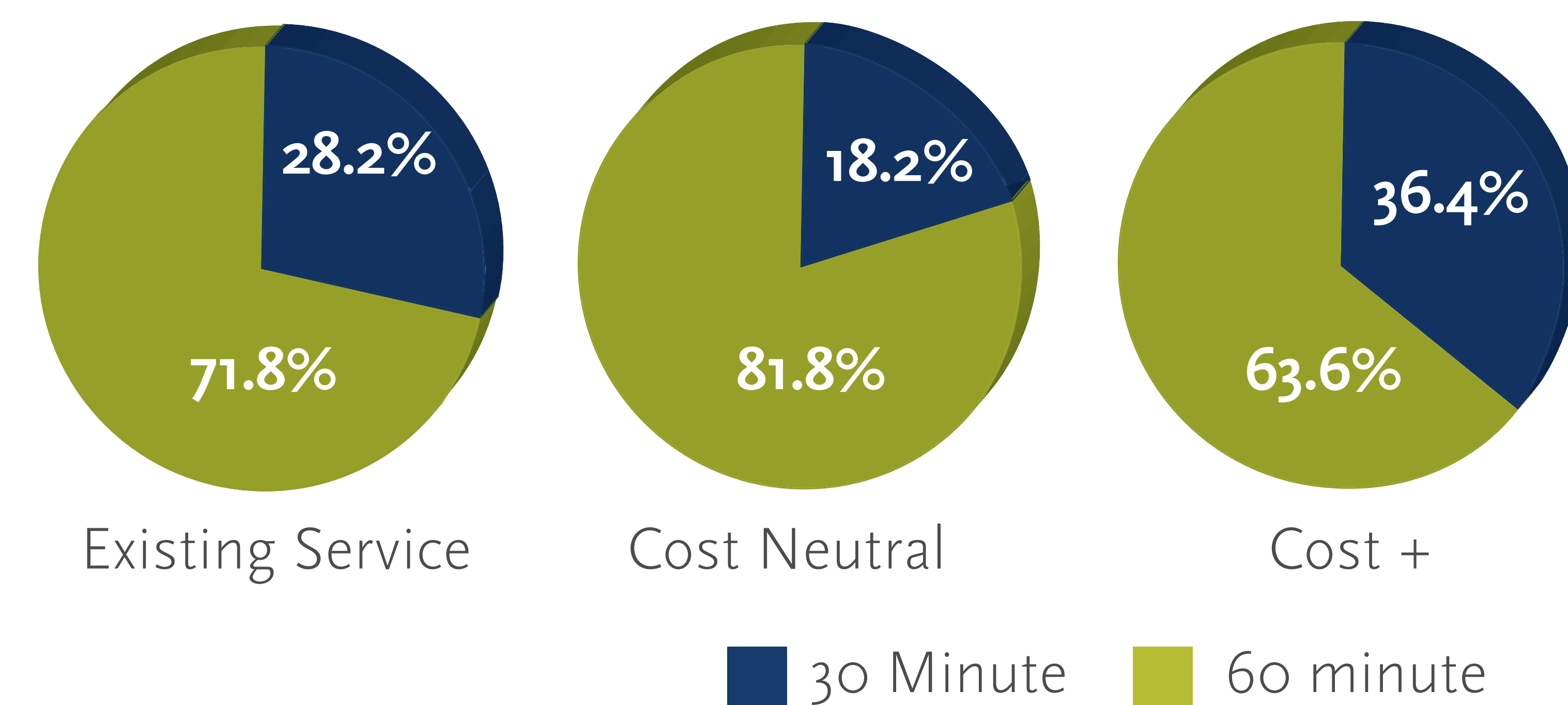
DAY SERVICES VERSUS EVENING SERVICE

The figure below measures the change in the percent of hours dedicated to daytime versus nighttime fixed route bus service.



FREQUENCY OF SERVICE

The figure below measures the change in the percent of service hours dedicated to 30 minute and 60 minute headways on the CAT system.



Transit Development Plan Update



Route Operational Analysis

COST CONSTRAINED

COST CONSTRAINED SCENARIO WEEKDAY/SATURDAY SERVICE			
Existing Condition			
	Total	Grand Forks	East Grand Forks
Revenue Hours	24,123	20,769	3,355
Peak Vehicles	7	6	1
Proposed Day Structure			
	Total	Grand Forks	East Grand Forks
Revenue Hours	25,574	21,020	4,554
Peak Vehicles	8	6	2
New Revenue Hours	System-Wide 1,451	Grand Forks 251	East Grand Forks 1,200
New Operating Cost (\$95/hr)	\$137,807	\$23,854	\$113,953
Additional Vehicles	0	-	-
New Capital Cost	\$0	-	-
Total New Cost (Day)	\$137,807	\$23,854	\$113,953

COST CONSTRAINED SCENARIO WEEKDAY/SATURDAY SERVICE			
Existing Condition			
	Total	Grand Forks	East Grand Forks
Revenue Hours	1,086	1,086	0
Peak Vehicles	1	1	0
Proposed Day Structure			
	Total	Grand Forks	East Grand Forks
Revenue Hours	2,440	1,220	1,220
Peak Vehicles	2	1	1
New Revenue Hours	System-Wide 1,354	Grand Forks 134	East Grand Forks 1,220
New Operating Cost (\$95/hr)	\$128,630	\$12,730	\$115,900
Additional Vehicles	No additional rolling needed		
New Capital Cost	-	-	-
Total New Cost (Day)	\$128,630	\$12,730	\$115,900

COST +

COST + SCENARIO WEEKDAY/SATURDAY SERVICE			
Existing Condition			
	Total	Grand Forks	East Grand Forks
Revenue Hours	24,123	20,769	3,355
Peak Vehicles	7	6	1
Proposed Day Structure			
	Total	Grand Forks	East Grand Forks
Revenue Hours	27,092	22,538	4,554
Peak Vehicles	9	7	2
New Revenue Hours	System-Wide 2,969	Grand Forks 1,769	East Grand Forks 1,200
New Operating Cost (\$95/hr)	\$282,017	\$168,065	\$113,953
Additional Vehicles	1	Covered by MnDOT 2018 Purchase	
New Capital Cost	\$0	-	-
Total New Cost (Day)	\$282,017	\$168,065	\$113,953

COST + SCENARIO WEEKDAY/SATURDAY SERVICE			
Existing Condition			
	Total	Grand Forks	East Grand Forks
Revenue Hours	1,086	1,220	0
Peak Vehicles	1	1	0
Proposed Day Structure			
	Total	Grand Forks	East Grand Forks
Revenue Hours	3,660	2,440	1,220
Peak Vehicles	3	2	1
New Revenue Hours	System-Wide 2,574	Grand Forks 1,354	East Grand Forks 1,220
New Operating Cost (\$95/hr)	\$244,530	\$128,630	\$115,900
Additional Vehicles	Assumes CAT has adequate fleet capacity to sustain proposed evening operations.		
New Capital Cost	-	-	-
Total New Cost (Day)	\$244,530	\$128,630	\$115,900

- Grand Forks
- » Improved Route Structure and Headways
 - » Day & Night Total new cost = \$296,695
 - » Currently there is no Grand Forks funding available for these added improvements to the service.
 - » East Grand Forks will need to find the revenue for year three.

Financial Plan—Five Year Summary

Grand Forks						
	2017	2018	2019	2020	2021	2022
Other	\$338.4	\$345.20	\$352.10	\$359.14	\$366.33	\$373.65
Local	\$1,765.1	\$1,800.37	\$1,836.38	\$1,873.11	\$1,910.57	\$1,948.78
State	\$253.1	\$258.18	\$263.35	\$268.61	\$273.99	\$279.46
Federal	\$1,112.0	\$1,134.21	\$1,156.89	\$1,180.03	\$1,203.63	\$1,227.70
Total Revenue	\$3,468.6	\$3,538.0	\$3,608.7	\$3,680.9	\$3,754.5	\$3,829.6
Existing Cost	\$3,468.6	\$3,538.0	\$3,608.7	\$3,680.9	\$3,754.5	\$3,829.6
New Route Structure						
Cost Constrained (Day)	\$0.0	-\$18.0	-\$24.0	-\$25.0	-\$26.0	-\$27.0
Cost Constrained (Night)	\$0.0	\$9.0	\$12.0	\$12.5	\$13.0	\$13.5
Total Cost	\$3,468.6	\$3,529.0	\$3,596.7	\$3,668.4	\$3,741.5	\$3,816.1
Total Shortfall/Surplus	\$0.0	\$9.0	\$12.0	\$12.5	\$13.0	\$13.5

East Grand Forks						
	2017	2018	2019	2020	2021	2022
Local	\$99.3	\$101.3	\$103.3	\$98.5	\$106.0	\$108.1
State	\$226.5	\$288.0	\$523.8	\$234.8	\$263.0	\$268.3
Federal	\$80.6	\$82.2	\$83.9	\$186.7	\$191.0	\$194.8
Total Revenue	\$406.4	\$471.6	\$711.0	\$520.0	\$560.0	\$571.2
Existing Cost	\$406.4	\$414.6	\$422.8	\$431.0	\$439.7	\$448.4
New Route Structure						
Cost Constrained (Day)	\$0.0	\$28.5	\$114.0	\$0.0	\$0.0	\$0.0
Cost Constrained (Night)	\$0.0	\$28.5	\$116.0	\$0.0	\$0.0	\$0.0
Total Cost	\$406.4	\$471.6	\$652.8	\$431.0	\$439.7	\$448.4
Total Shortfall/Surplus	\$0.0	\$0.0	\$58.2	\$89.0	\$120.3	\$122.8

Capital Rolling Stock—System Needs Analysis

Vehicle Needs	
Cost Constrained Scenario	+0 New Vehicles
Cost + Scenario	+ 0 Fixed Route Vehicle
Cost ++ Scenario	+1 Fixed Route Vehicles/ +1 DAR

- » East Grand Forks Request for Fixed Route Coach
- » Assumes GF Tripper discontinued
- » Spare Ratio
 - Cost Constrained: 50% (+0)
 - Cost +: 33% (+0)
 - Cost ++: 30% (+1)

Spare Ratio Analysis SPARE RATIO ANALYSIS (NO HC TRIPPER)		
	Fleet Requirement	Spare Ratio
Total Fleet (Fixed)	12	X
Peak - Existing Condition	7	71.4%
Peak - Cost Constrained	8	50.0%
Peak - Cost +	9	33.3%
Peak - Cost ++	10	20.0%

SPARE RATIO ANALYSIS (NO HC TRIPPER) + 1 VEHICLE		
	Fleet Requirement	Spare Ratio
Total Fleet (Fixed)	13	X
Peak - Existing Condition	7	85.7%
Peak - Cost Constrained	8	62.5%
Peak - Cost +	9	44.4%
Peak - Cost ++	10	30.0%

SPARE RATIO ANALYSIS (NO HC TRIPPER) + 2 VEHICLE		
	Fleet Requirement	Spare Ratio
Total Fleet (Fixed)	14	X
Peak - Existing Condition	7	100.0%
Peak - Cost Constrained	8	75.0%
Peak - Cost +	9	55.6%
Peak - Cost ++	10	40.0%

Transit Development Plan Update

Transit Asset Management (TAM)

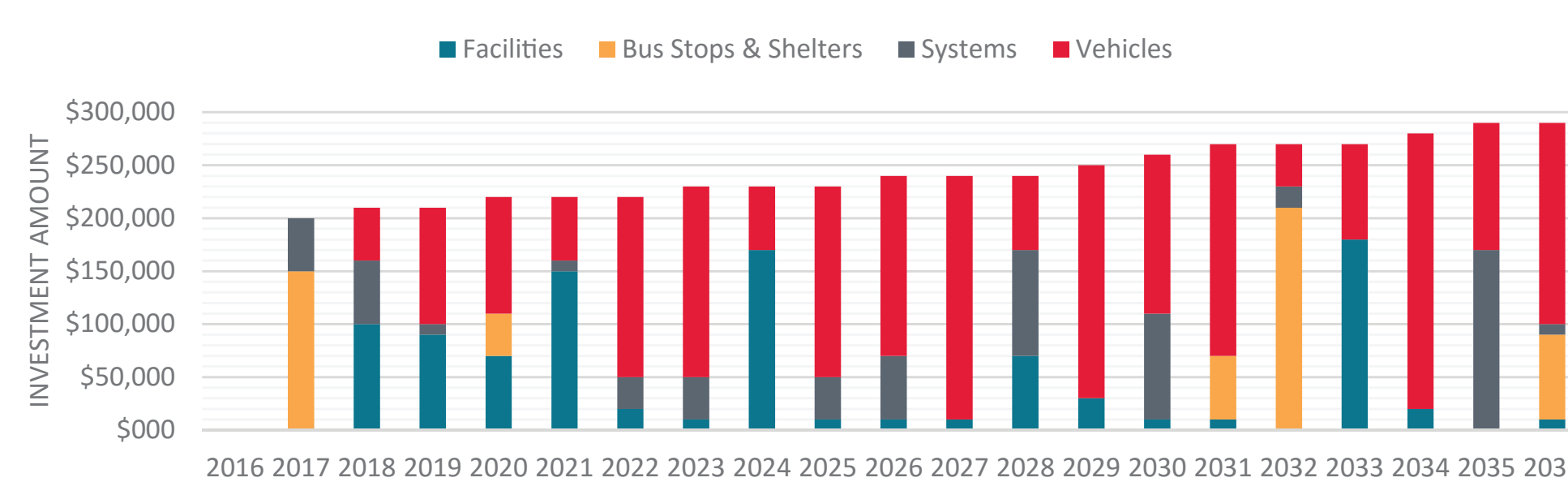
TRANSIT ASSET MANAGEMENT (TAM) (TERM ANALYSIS)

- » Per the Final Rule Fact Sheet the TAM includes:
 - Inventory of Capital Assets (as an appendix to the TDP)
 - Condition Assessment of all assets based on the FTA TERM software
 - Decision Support Tools based on FTA TERM software
 - Investment Prioritization

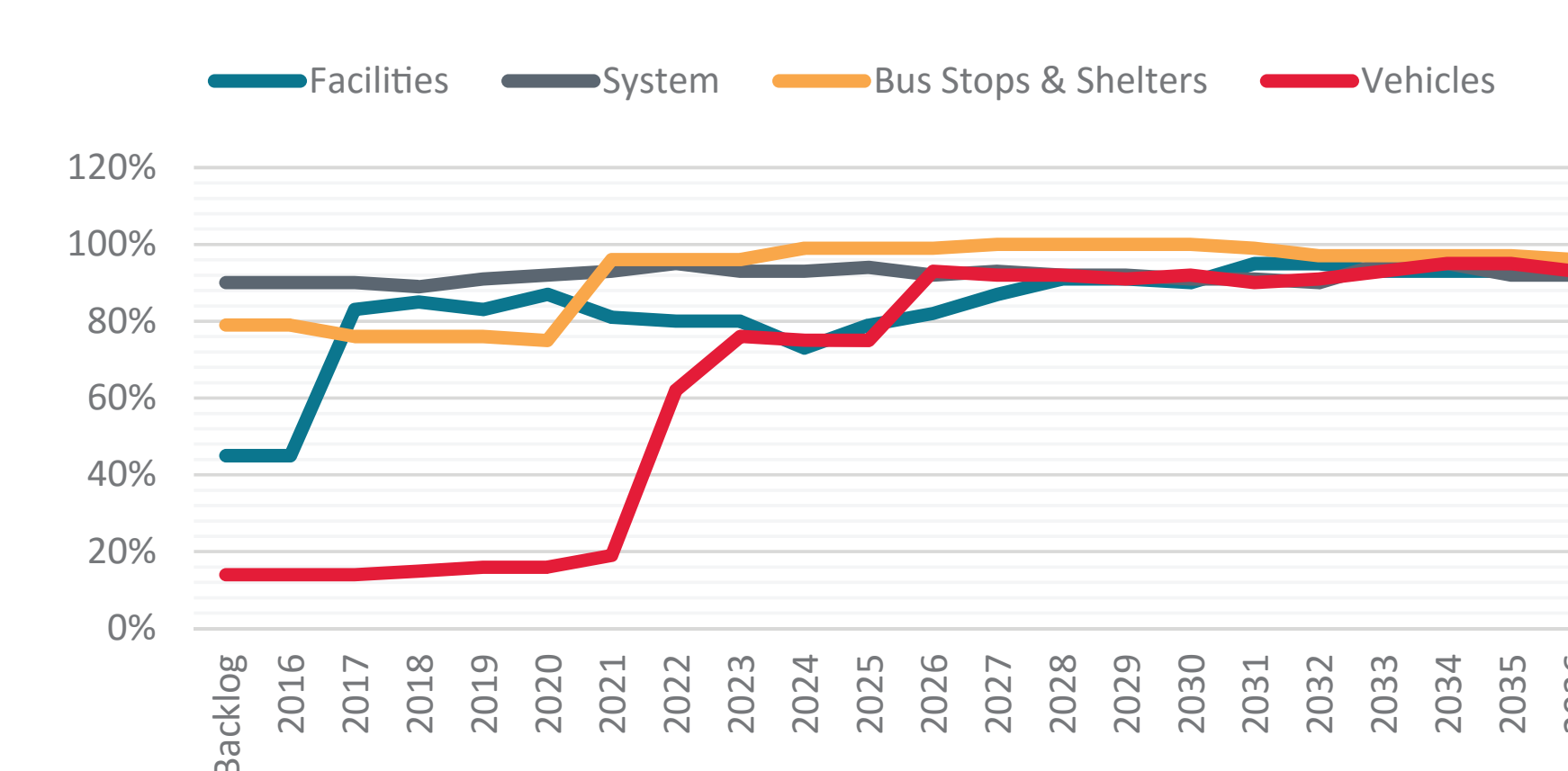
Category	Sub-Category	Element	Useful Life	Replacement Value (2016 \$)	Excellent	Good	Adequate	Marginal	Poor*
Facilities	Buildings	Maintenance	30	\$8,081,000					100%
	Equipment	-	5 to 10	\$198,000	3%		5%	77%	15%
	Equipment	Maintenance	5 to 7	\$804,000		18%	3%	30%	49%
	Equipment	MIS/IT/Network Systems	3 to 7	\$839,000			21%	77%	3%
Vehicles	Revenue Vehicles	Bus	10 to 12	\$4,005,000		24%			63%
	Revenue Vehicles	Vans, Cutaways, and Autos	4 to 7	\$1,488,500	69%	22%	3%	3%	3%
	Non-Revenue Vehicles	-	6	\$343,000	25%		14%	5%	56%
Stations	Bus Stop & Shelters	Bus Stops	20	\$1,091,000			100%		
	Bus Stop & Shelters	Bus Stop Shelters	7	\$4,013,000					100%
Systems	Communications	Phone System	5	\$38,000		100%			
	Communications	Radio	7	\$52,000					100%
	Communications	Safety and Security	5 to 7	\$214,000		24%	15%	38%	23%
	ITS	-	5 to 7	\$52,000			100%		
	Revenue Collection	-	7	\$1,462,395				100%	

*Poor condition indicates the asset has reached the end of its useful life and is not in a state of good repair

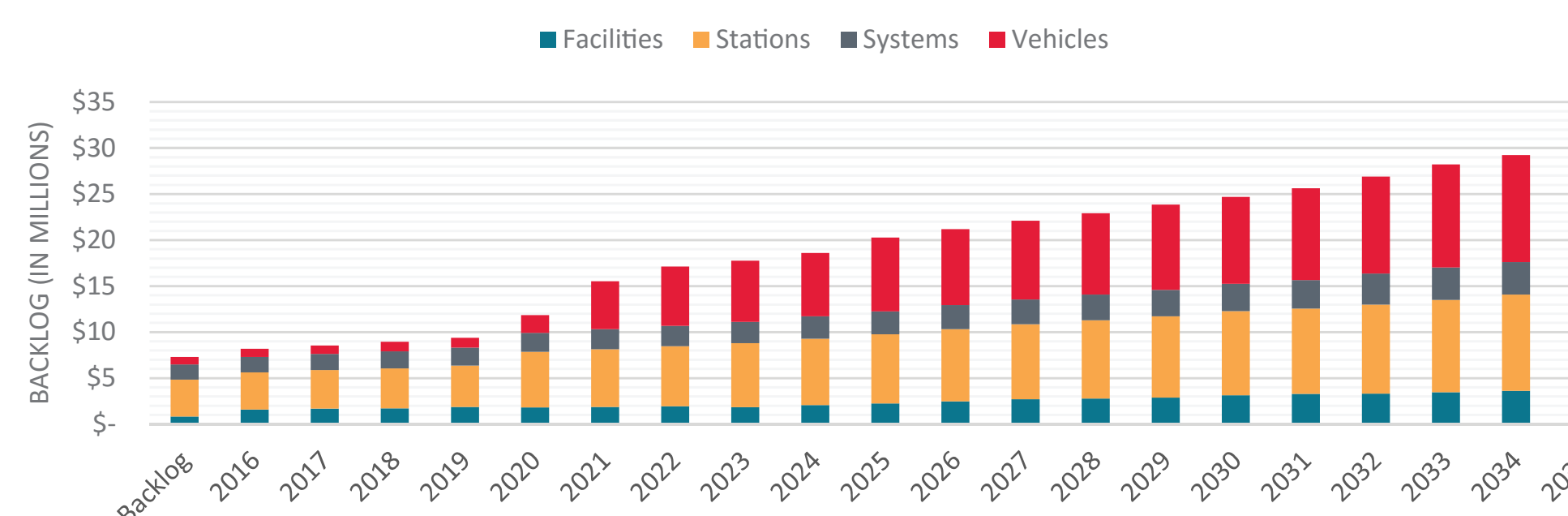
Proposed Investment Schedule Assuming \$200k Annual Capital Investment Budget



Percent of Replaceable Assets that Exceed their Useful Life by Category in Current Funding Conditions



State of Good Repair Backlog with Current Annual Funding



While the optimal strategy for Asset Management is to keep the backlog at 50% of total asset value, this can be achieved with **an average annual investment of \$1.24 million.**

This is not possible with current Transit funding levels. The deterioration of system assets is expected to reach mostly poor condition by 2023.

Goals and Performance Measures

FIXED ROUTE

Performance Measures	Performance Level
1) Span of Service	18 hours a day for six days a week
2) Service Frequency	30 minute headways AM/PM peak hour on at least 4 of 9 CAT Routes (equal to Cost + service scenario)
3) Service Availability	75% of the service area population within 1/4 mile of a transit route
4) Service Hours per Capita	0.46 (equal to Cost Constrained service scenario)
5) Information Availability	Standard requirements—Title VI, riders guide, service schedules, trip reservation process
6) Planning Requirements	Identified and analyzed as part of Transit Development Plan. Service expansions must be determined through alternatives analysis.
7) Number of Shelters Installed	Shelters at stops with at least 20 boardings per day, major transfer points, and facilities serving disabled and/or senior populations.
8) Bicycle Parking at Transit Stops	Bike parking at stops with at least 20 boardings per day
9) Continuous Walking Route and Crossings	Pedestrian facilities within 1/4 mile of stops with at least 20 boardings per day
10) Public Transportation and Human Services Coordination	Update Coordinated Plan once every five years; establish outreach targets in coordination with the Coordinated Plan. Assess annually.
11) Passengers per Service Hour	15.62
12) On-Time Performance	90% of schedule stops on-time (within 5 minutes)
13) Passenger Complaints	Six complaints per 100,000 boardings
14) Road Calls	New data collection system implemented in 2017. Measure for one year and set target in cooperation with MPO.
15) Accidents	One accident per 100,000 revenue miles
16) Fleet Maintenance	At least 75% of all regular fleet available for operations
17) Spare Radio	Spare vehicles to peak requirement less than 20%
18) Cost per Revenue Hour	\$91.12
19) Cost per Ride	\$5.83
20) Farebox Recovery	15%
21) Ridership	Increase ridership 5% per year
22) Transit Auto Travel Time	Transit travel time should be no more than 3 times auto travel time

DEMAND RESPONSE

Performance Measures	Performance Level
1) Span of Service	18 hours a day for six days a week
2) Service Availability	75% of the service area population within 1/4 mile of a transit route
3) Service Hours per Capita	0.31
4) Information Availability	Standard requirements—Title VI, riders guide, service schedules, trip reservation process
5) Planning Requirements	Identified and analyzed as part of Transit Development Plan. Service expansions must be determined through alternatives analysis.
6) Number of Shelters Installed	Shelters at stops with at least 20 boardings per day or major transfer points
7) Public Transportation and Human Services Coordination	Update Coordinated Plan once every five years; establish outreach targets in coordination with the Coordinated Plan. Assess annually.
8) Passengers per Service Hour	2.7
9) On-Time Performance	90% on-time within published pickup window
10) Advance Registration Time	Maximum two hours in advance
11) Reservation Negotiation Window	Maximum: up to one hour before/after requested time
12) Trip Denials	Must follow ADA trip denial definitions and process
13) Trip Cancellations	Bus or vanpool trips should only be canceled from lack of riders or weather
14) Passenger Complaints	Six complaints per 100,000 boardings
15) Road Calls	New data collection system implemented in 2017. Measure for one year and set target in cooperation with MPO.
16) Accidents	One accident per 100,000 revenue miles
17) Fleet Maintenance	At least 75% of all regular fleet available for operations
18) Spare Radio	Spare vehicles to peak requirement less than 25%
19) Cost per Revenue Hour	\$74.75
20) Cost per Ride	\$27.66
21) Farebox Recovery	15%
22) Ridership	Ridership growth commensurate with eligible rider growth