METRONEXT

BETTER TRANSIT FOR A MORE CONNECTED REGION

Appendix D

Scenario Cost Estimates + Evaluation Criteria

metro

Omaha Metro Indefinite Delivery/ Indefinite Quantity A/E Services

Task Order No. 16
Omaha MetroNEXT – Scenario Development & Evaluation

FINAL

Omaha Metro
2222 Cuming Street
Omaha, NE 68102

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Table of Contents

Cost Estimates 1

Operating Costs Methodology 1

Capital Background 2

Capital Costs Methodology 3

ORBT Property, Design, and Construction Costs 4

Vehicle Costs 4

Miscellaneous Capital Costs 5

Expected Revenues from Transit Authority 5

Results 6

Final Scenario Costs 10

Evaluation Criteria 11

Evaluation Process Overview 11

Purpose of Evaluation Criteria 11

Methods 12

Criterion #1: Population benefiting from stop improvements 12

Criterion #2: Population with access to frequent service 12

Criterion #3: Jobs with access to frequent service 12

Criterion #4: Population with improved transit service 13

Criterion #5: Jobs with improved transit service 13

Criterion #6: Zero-vehicle households benefiting 13

Criterion #7: Low-income population benefiting 14

Criterion #8: Anticipated increase in ridership 14

Criterion #9: People of color benefiting 15

Criterion #10: Greenhouse gas emissions reduction 15

Evaluation Process: Phase One 16

Community Survey 19

Survey Description 19

Data Processing 21

Results....21

Evaluation Process: Phase 2....26

Ranking....26

Refinement....29

Final List of Projects....30

Return most fixed routes to pre-COVID service levels....30

Expanded Saturday service....30

Increased frequency on Route 15 (Short)....30

Expanded Sunday service....30

Increased frequency on Route 4....30

Increased frequency on Route 3....30

Increased frequency on Route 13....30

Expanded service on Route 16....30

Expanded evening service....31

24th Street ORBT....31

Increased frequency on Route 30....31

Route 92 extension to Elkhorn....31

Fort Street Express....31

50 new shelters....31

72nd Street ORBT....31

Promotion of vanpool....31

New bus stop signage....32

MOBY clients ride fixed-route free....32

Permanent free K12 fares....32

Final Evaluation....32

H:\Projects\10000\10490-16\TP_Task 8 - Final Documentation\MetroNext_AlternativesEval_FINAL.docx

Cost Estimates

This section describes the methodology and results of developing cost estimates for the proposed service enhancements and capital concepts for MetroNEXT. The operating costs include the cost of operating and maintaining services, along with costs incurred to administer the transit programs. Capital costs include the estimated cost of additional vehicles and assets, design and construction, and property acquisitions.

Operating Costs Methodology

Operating costs are based on an average cost per hour of service. For the financial planning purposes of MetroNEXT, this project assumed a future regular fixed route cost of $131.72 per revenue hour and an ORBT operating cost of $156.82 per revenue hour. These amounts are slightly higher than the current operating costs for fixed route and ORBT, allowing the cost estimates for expanded service to account for cost escalation.

Fixed route operational costs are based on three factors: revenue hours of service, revenue miles, and total buses. Revenue hour projections are presented by service enhancement concept, both for expanding the service provision of current routes and for new route concepts. The operating cost per revenue hour includes the operator salary and benefits, administrative overhead, maintenance items, fuel costs, and insurance and vehicle registration.

Methodology	Estimated Operating and Maintenance Cost
Why It Is Important	Operating costs are used to estimate the annual service hours available to Metro. The hours can then be assigned to various service products and at the desired service level within the overall operating budget. Funding sources for transit operations are constrained. Thus, projects must be prioritized. Annual operations and maintenance costs are one of several important considerations in developing a robust bus network that is sustainable long into the future. Metro must consider the financial sustainability of any service it provides to ensure it can meet communities' mobility needs in the near and long term.
Description	The net estimated annual operations and maintenance costs by proposed service enhancement
Methods	The assumed operating costs of $131.72 per service hour for regular fixed route service and $156.82 per service hour for ORBT were multiplied by the additional annual hours necessary for each proposed service enhancement
Data Sources	Metro

Certain service enhancements have costs are not estimated in terms of miles, hours, or buses. These are shown below, per unit and on an annual basis as applicable.

Table 1. Miscellaneous Operating Costs

Item	Per Unit Cost
Vanpool Promotion	$20,000
MOBY Clients Ride Fixed-Route Free	$300,000
Permanent Free K-12 fares	$120,000
Shelter Maintenance	$150,000 (systemwide total)
Bellevue ORBT Planning Study	$300,000

Capital Background

Metro has its own fleet of vehicles for fixed route and MOBY paratransit service. Metro has 121 buses for fixed route service, ten ORBT articulated buses, and 33 vans and four cars for MOBY services. New buses are a continuous capital need to replace existing buses that have reached the end of their useful life, as well as to support new services, such as ORBT or service enhancements requiring fleet expansion. ORBT introduced higher capacity articulated buses to the fleet in 2020. The Federal Transit Administration (FTA) requires transit vehicles to meet minimum service-life standards before vehicles are eligible for replacement without penalty. Metro uses a 12-year or 500,000-mile schedule for bus replacements and a seven-year schedule for MOBY vans, consistent with FTA policy.

The vehicle replacement and expansion need is based on comparing the service needs for each year with the current fleet list and the projected replacement dates for each vehicle. Metro aims to have up to 20 percent of additional fleet capacity (spare ratio) compared to its service need.

Based on the service needs during the peak of each route, a minimum number of vehicles can be established for the proposed system enhancements. The package of proposed projects in MetroNEXT will require an increase in the number of buses on the streets during peak and midday service. Standard buses are the 35- and 40-foot long buses Metro currently operates. Articulated buses are 60-foot long buses that have an articulated joint in the center of the bus that allows the bus to bend, currently operated by Metro for ORBT. The purpose of having different types of buses is to match vehicle type to service area and ridership levels. Other types of vehicles include MOBY vans and supervisor cars. MetroNEXT also consider the cost of vanpool vans and microtransit vans.

Metro stores and maintains its vehicles at its main facility at 2222 Cuming Street. This facility is where the transit program administration is located, a building shared with the Metropolitan Area Planning Agency (MAPA) of Greater Omaha. The facility can currently store and maintain up to 200 standard size buses. Articulated buses are longer and take up approximately twice as much space as regular buses. MOBY vans are also stored in the bus garage, along with a few cars. These are parked along the southern end of the garage space and do not impact the storage capacity for standard buses. There would be room to expand the current building on the west and southeast

sides, if necessary, at the expense of employee parking. However, the vehicle needs associated with the full package of proposed projects in MetroNEXT do not exceed the storage capacity of the Metro bus garage.

Certain potential future costs are not included in this plan. The plan does not consider the additional space required to add washing bays, fueling or electric charging stations, or maintenance bays; nor does it estimate the additional administrative personnel and administrative space likely to be necessary once operations are expanded to the full package of proposed projects in MetroNEXT.

Capital Costs Methodology

Capital costs include the estimated cost of additional vehicles and assets, design and construction, and property acquisitions. Capital projects are funded through a combination of federal and local funding sources, but can create a large single-year increase in costs. Most capital expenses are funded at an 80 percent federal – 20 percent local match split. However, to increase project competitiveness in federal transit capital improvement grant programs, Metro aims to overmatch the local share to 35 or 40 percent. Projects that would be eligible for competitive federal grant programs would include bus rapid transit projects such as ORBT. More routine capital improvements would still be covered by an 80-20 federal local split.

For planning purposes, it was assumed that capital improvements associated with the proposed service enhancements and capital concepts of MetroNEXT would be funded on average through a 70-30 federal local split. To reduce the one-time costs, the capital costs were spread over a seven-year timeframe to 2030.

Thus, all capital costs were multiplied by 30 percent and divided over seven years to represent the annual local costs. Costs are for planning purposes only and are intended to compare order of magnitude costs between proposed service enhancements and capital concepts. Detailed cost estimates will be developed based on additional planning when scope, schedule, and projects are further defined.

Methodology	Estimated Capital Costs
Why It Is Important	Funding sources for capital concepts are limited, constrained, and federally competitive. Thus, projects must be prioritized. Capital costs are one of several important considerations in developing a robust bus network that is sustainable long into the future. Metro must consider the financial sustainability of any service it provides to ensure it can meet communities' mobility needs in the near and long term.
Description	The net estimated annualized capital costs by proposed capital concept
Methods	Costs are for planning purposes only and are intended to compare order of magnitude costs between proposed service enhancements and capital concepts. Detailed cost estimates will be developed based on additional planning when scope, schedule, and projects are further defined.

	It is assumed that all capital costs will be funded by an average federal-local split of 70 percent federal to 30 percent local, with the local share spread over a seven-year period through 2030. For ORBT routes, Metro assumes that it will be responsible for 20 percent of Property, Design, Construction costs, with the remaining 10 percent covered by governmental and philanthropic local fundraising partners.
Data Sources	Metro and recent industry trends

ORBT Property, Design, and Construction Costs

To increase project competitiveness in federal transit capital improvement grant programs, Metro aims to overmatch the local share for additional ORBT routes beyond the minimum federal requirement. Metro assumes that federal funds would cover 60 to 70 percent of the total construction costs for flagship projects such as additional ORBT routes. Metro is confident it can raise additional local funds through governmental and philanthropic partners for flagship projects such as additional ORBT routes.

Metro was able to secure multiple funding partners for the Dodge Street ORBT to reduce Metro's share of the total capital cost to 20 percent, with the remaining local share covered through governmental and philanthropic partners. While the cost estimate for the individual line items for ORBT routes assumes a 30 percent local match, Metro assumes that it will be responsible for 20 percent of Property, Design, Construction costs for the ORBT routes proposed in the full package of MetroNEXT projects, with the remaining 10 percent covered by local fundraising partners.

The anticipated costs for additional ORBT routes are shown below. The actual annual operating costs for 24th Street, 1st Ave/Broadway, and 72nd Street are lower than shown due to replacing or reducing service on Route 24, the Blue & Yellow Routes, and Routes 13 and 18.

Table 2. ORBT Property, Design, and Construction Costs

ORBT Route	Estimated Property Cost	Projected Design & Construction Cost	Projected Fleet Cost	Total Annual Operating Cost
North Beltline	$17,100,000	$47,400,000	$3,400,000	$2,522,512
24th Street	$0	$39,750,000	$7,650,000	$5,999,165
1st Ave / Broadway	$800,000	$53,340,000	$4,250,000	$3,782,169
72nd Street	$0	$42,020,000	$8,500,000	$5,883,196
Fort Crook	$0	$46,680,000	$7,650,000	$4,523,567

Vehicle Costs

Based on the service needs during the peak of each route, a minimum number of vehicles can be established for the proposed system enhancements. The package of proposed projects in

MetroNEXT will require an increase in the number of buses on the streets. The anticipated cost per vehicle type is shown below and is based on recent industry trends.

Table 3. Vehicle Costs

Vehicle Type	Cost
Regular Bus (Electric or CNG)	$800,000
ORBT Articulated Bus 60ft	$850,000
MOBY Vans	$250,000
Microtransit Vans	$100,000
Vanpool Vans	$70,000
Supervisor Cars	$55,000

Miscellaneous Capital Costs

Other miscellaneous capital improvement costs are shown below, per unit.

Table 4. Miscellaneous Capital Costs

Item	Per Unit Cost
Bus Stop Signs	$100
Bus Shelters	$20,000
Real Time Solar E-Readers	$4,000
Park-and-Ride Amenities	$350,000

Expected Revenues from Transit Authority

After establishing the estimated costs for individual service enhancements and capital concepts, Metro developed a priority list of projects based on quantitative evaluation metrics and input from public engagement. The package of proposed projects in MetroNEXT reflects this prioritization list within the anticipated budget of Metro after the transition to a Regional Transit Authority. For MetroNEXT, it was assumed the Regional Transit Authority could locally raise up to an additional $18,810,712 annually compared to 2021. Together with the current small budget surplus due to COVID-19 pandemic-related service reductions, this brings the total annual budget available for MetroNEXT to $52,367,806.

Results

The table below reflects the estimated costs for the service enhancements and capital concepts that were ultimately chosen for MetroNEXT, after prioritization and further refinement. For each alternative, the table shows cost estimates including:

- Incremental Increase in Daily Service Hours
- Daily Number of Vehicles or Units Necessary
- Incremental Increase in Annual Operating Cost
- Total Capital Cost
- Capital Annualized at 30 Percent over Seven Years
- Combined Annual Cost, representing the sum of the incremental increase in annual operating cost and the capital cost annualized at 30 percent over seven years

The table retains the original groupings of alternatives into core improvements and three themed scenarios. Ultimately, the final project list draws on elements of all three scenarios. Cost estimates for elements that were not chosen are shown as a separate, final set of rows in the table.

Table 5. Cost Estimate by Service Enhancement and Capital Concept

Service Enhancement and Capital Concepts	Incremental Increase in Daily Service Hours	Incremental Increase in Vehicles/Units Needed	Incremental Increase in Annual Operating Cost	Total Capital Cost	Capital Cost Annualized at 30% over 7 Years	Combined Annual Cost
Core Improvements						
24th Street corridor ORBT	48.9 hours	9 ORBT buses	$3,278,824	$47,400,000	$2,031,429 $1,463,571 (20% Metro Share Property, Design, Construction, 30% Vehicles)	$5,310,253
New bus stop signage (route number/bus tracking information)	-	2,200 bus stop signs	$-	$220,000	$9,429	$9,429
Return most fixed-routes to pre-COVID schedules	78.9 hours	Metro has enough vehicles to restore service	$2,650,700	$-	$-	$2,650,700
Route 4 every 15 min all day	37.5 hours	-	$1,259,573	$-	$-	$1,259,573
Route 15 every 15 min all day (Aksarben-DT only)	23.4 hours	-	$785,973	$-	$-	$785,973
Mid-day trip to Westroads on 92 Express, extend route to Elkhorn	9.6 hours	1 regular bus	$322,451	$800,000	$34,286	$356,737
Promotion of vanpool and 10 new vanpools	-	10 vanpool vans	$20,000 (promotional)	$700,000	$30,000	$50,000
50 new bus shelters with real time solar e-readers	-	50 bus shelters 50 real time solar e-readers	$150,000 (systemwide shelter maintenance)	$1,200,000	$51,429	$201,429

Service Enhancement and Capital Concepts		Incremental Increase in Daily Service Hours	Incremental Increase in Vehicles/Units Needed	Incremental Increase in Annual Operating Cost	Total Capital Cost	Capital Cost Annualized at 30% over 7 Years	Combined Annual Cost
MOBY clients ride fixed-route free		-	-	$300,000	$-	$-	$300,000
Permanent free K12 fares		-	-	$120,000	$-	$-	$120,000
Improving Frequency & Extending Hours							
15-minute frequency all day	3	44.1 hours	3 Regular Buses	$1,481,257	$2,400,000	$102,857	$1,584,114
15-Minute Peak	13	19.0 hours	-	$638,183	$-	$-	$638,183
15-Minute Peak, extend McKinley in Peak	30	21.8 hours	3 Regular Buses	$732,231	$2,400,000	$102,857	$835,088
Extended evening service		8 hours	-	$268,709	$-	$-	$268,709
Expanded Saturday Service		71.4 hours (Sat only)	-	$517,264	$-	$-	$517,264
Expanded Sunday Service		161.4 hours (Sun only)	-	$1,169,278	$-	$-	$1,169,278
Expanding Service to New Areas							
Fort Street Express, replace Route 98		8.4 hours	1 Regular Bus	$282,144	$800,000	$34,286	$316,430
Route 16 at 30 minutes, 7 days a week		34.2 hours, plus weekend		$1,339,849	$-	$-	$1,339,849
Enhancing Rider Amenities							
72nd Street ORBT		56.3 hours	10 ORBT Buses	$3,253,209	$50,520,000	$2,165,143 $1,564,857	$5,418,352

Service Enhancement and Capital Concepts	Incremental Increase in Daily Service Hours	Incremental Increase in Vehicles/Units Needed	Incremental Increase in Annual Operating Cost	Total Capital Cost	Capital Cost Annualized at 30% over 7 Years	Combined Annual Cost
					(20% Metro Share Property, Design, Construction, 30% Vehicles)	
Proposals Not Included in MetroNEXT Package of Proposed Projects						
Microtransit Zone – Cost per Zone	34 hours per zone, plus weekend	2 Microtransit Vans	$1,518,205	$200,000	$8,571	$1,526,776
North Beltline ORBT	51 hours	4 ORBT Buses	$2,522,512	$67,950,000	$2,912,143 $1,990,000 (20% Metro Share Property, Design, Construction, 30% Vehicles)	$5,434,655
Park-and-Ride Amenities	-	-	$-	$350,000	$15,000	$15,000
New 144th Street fixed route	33.9 hours	2 Regular Buses, 4 Bus Shelters, 80 Stop Signs	$1,138,654	$2,600,000	$111,429	$1,250,082

Final Scenario Costs

The package of proposed projects in MetroNEXT includes the following service enhancements and capital concepts. Full descriptions of the final list of projects is provided at the end of this report.

- Return most fixed routes to pre-COVID service levels
- Expanded Saturday service
- Increased frequency on Route 15
- Expanded Sunday service
- Increased frequency on Route 3
- Increased frequency on Route 4
- Increased frequency on Route 13
- Expanded service on Route 16
- Expanded evening service
- 24th Street ORBT
- Increased frequency on Route 30
- Route 92 extension to Elkhorn
- Fort Street Express
- 50 new shelters
- Promotion of vanpool
- New bus stop signage
- MOBY clients ride fixed-route free
- Permanent free K12 fares

The final scenario also includes the 72nd Street ORBT vehicles and property, design, construction cost, but not the operating cost. This route would require an additional $3.2 million annually to operate after construction. However, by 2030, the new 24th Street ORBT and other capital costs may be paid off, freeing up funds in the budget for additional operating hours.

The total cost for the package of proposed projects in MetroNEXT is shown below. This proposal would require an additional eight regular service buses, 19 ORBT articulated buses, 10 vanpool vans, and three supervisor cars.

Table 6. Final Scenario Costs

	Current (2021)	MetroNEXT Proposal
Total Annual Operating Cost	$32,957,094	$48,158,921
Annual Capital Cost (30%/7 Years)		$1,620,071
ORBT Property, Design, Construction (20%/7 Years)		$2,336,286
ANNUAL TOTAL	$32,957,094	$52,115,278
Incremental Increase		+$19,158,184

Evaluation Criteria

Evaluation Process Overview

In addition to cost estimation, the potential service enhancements and capital concepts were evaluated according to 10 technical criteria that followed from the goals set out for MetroNEXT. The evaluation results were initially used, in a high-level summary form, to differentiate the three scenarios presented to the public, as each scenario scored somewhat differently on the five goals. Following a community survey, the improvements were ranked on the basis of the combination of their evaluation score; their survey score; and their estimated cost.

Purpose of Evaluation Criteria

Technical evaluation criteria were applied to each of the alternatives to provide more granular indicators of potential success. These evaluation criteria assess the alternatives themselves as well as the physical, social, and economic contexts in which they would operate or be constructed.

The criteria were developed to identify how well each potential improvement served MetroNEXT goals. The relationship between goals and criteria is shown in Table 8.

Table 7. Evaluation Criteria: First Round

MetroNEXT Goal	Criterion	Improvement Type
Provide an excellent travel experience	Population benefiting from stop improvements	ORBT, stop amenity upgrades
Improve and expand connections	Population with access to frequent service	Additional or new frequent service (15 minutes all day)
	Jobs with access to frequent service	Additional or new frequent service (15 minutes all day)
	Population with improved transit service	All service improvements
	Jobs with improved transit service	All improvements
Lead responsibly and collaboratively	Zero-vehicle households benefiting	All improvements
	Increase in ridership with improved service	All service improvements
Address equity in our region	People of color benefiting	All improvements
	Low-income households benefiting	All improvements
Promote environmental stewardship	*Greenhouse gas emissions reduction*	All improvements predicted to boost ridership

Methods

Criterion #1: Population benefiting from stop improvements

Goal	Provide an excellent travel experience
Why It Is Important	Providing quality transit service is about more than running buses. It means providing comfort, safety, and high-quality information when riders are planning their trips and waiting at stops.
Description	Number of people benefiting from new amenities
Methods	For stop improvements, the metric is an estimate of the population residing within a quarter mile of the improved stops. For ORBT routes, the metric is an estimate of the population residing within a half mile of the route alignment. These are widely considered reasonable walking distances to regular bus stops and rapid transit stops, respectively.
Data Sources	Esri population estimates,[1] Metro GIS files

Criterion #2: Population with access to frequent service

Goal	Improve and expand connections
Why It Is Important	Frequency of service has a proven connection to the value seen in transit. It reduces waiting times, helps speed start-to-end journeys, and allows for more spontaneous trips.
Description	Number of people with access to frequent service
Methods	For local service, the metric is an estimate of the population residing within a quarter mile of the route alignment of frequent routes. For ORBT routes, the metric is an estimate of the population residing within a half mile of the route alignment.
Data Sources	ESRI population estimates, Metro GIS files

Criterion #3: Jobs with access to frequent service

Goal	Improve and expand connections
Why It Is Important	Commutes to work are one of the most important functions transit serves in Omaha. To allow busy employees to fit work travel into their schedules, jobs should be accessible by frequently arriving routes. Secondarily, job concentrations can also indicate shopping destinations for customers.
Description	Number of jobs served by a frequent service route (15 minutes during the morning peak and midday periods)

[1] Esri publishes annually updated population estimates based on U.S. Census data. Population totals are a projection to 2020 of counts from the 2010 census.

Methods	For local service, the metric is an estimate of the number of jobs located within a quarter mile of each frequent service route. For ORBT routes, the metric is an estimate of the jobs within a half mile of the route alignment.
Data Sources	Longitudinal Employer–Household Dynamics (LEHD),[2] Metro GIS files

Criterion #4: Population with improved transit service

Goal	Improve and expand connections
Why It Is Important	The impact of a transit service improvement is dependent on the number of people who are able to benefit from it. In addition, as a service funded by tax revenue, transit should be available to as many residents as possible.
Description	Number of people benefiting from the improved service
Methods	For local routes, the metric is an estimate of the population residing within a quarter mile of the route alignment. For ORBT routes, the metric is an estimate of the population residing within a half mile of the route alignment. For express routes, the metric is an estimate of the population residing within a quarter mile of each stop, as well as the population within the catchment area of the associated park-and-ride.
Data Sources	ESRI population estimates, Metro GIS files

Criterion #5: Jobs with improved transit service

Goal	Improve and expand connections
Why It Is Important	Similarly to criterion #3, this criterion captures the critical start or end of many transit trips, including trips taken on non-frequent routes.
Description	Number of jobs with improved transit access
Methods	For local routes, the metric is an estimate of the jobs within a quarter mile of the route alignment. For ORBT routes, the metric is an estimate of the jobs within a half mile of the route alignment. For express routes, the metric is an estimate of the jobs within a quarter mile of each stop.
Data Sources	LEHD, Metro GIS files

Criterion #6: Zero-vehicle households benefiting

Goal	Lead responsibly and collaboratively
Why It Is Important	In order to make effective use of its transit investment, Metro should direct service where it is most likely to be used. Households without vehicles are more likely to need and regularly use public transit.

[2] LEHD data are provided through a partnership between the U.S. Census Bureau and individual states. Job counts are from 2019, the most recent year available.

Description	Number of zero-vehicle households benefiting from service improvement
Methods	For stop improvements and express routes, the metric is an estimate of the number of zero-vehicle households within a quarter mile of the improved stops. For ORBT routes, the metric is an estimate of the zero-vehicle households within a half mile of the route alignment. For local routes, the metric is an estimate of zero-vehicle households within a quarter mile of the route alignment.
Data Sources	American Community Survey 2015-2019 estimates, Metro GIS files

Criterion #7: Low-income population benefiting

Goal	Address equity in our region
Why It Is Important	Similarly to criterion #6, the number of low-income households served by a transit improvement is an important predictor of use. In Omaha as in other transit jurisdictions, transit is an essential service for households unable to afford unlimited access to personal vehicles. Directing transit service toward low-income households promotes both equity and effective service provision.
Description	Number of low-income people benefiting from improvements
Methods	The metric is an estimate of residents of low-income households living within a quarter mile of stop improvements, express stops, and local service alignments; within a half mile of ORBT alignments; and within park-and-ride catchment areas. For purposes of this metric, a low-income household is defined as a household whose total income is below the poverty guidelines published annually by the U.S. Department of Health and Human Services. For a family of four in 2022, the poverty line is $27,750.
Data Sources	American Community Survey 2015-2019 estimates, Metro GIS files

Criterion #8: Anticipated increase in ridership

Goal	Lead responsibly and collaboratively
Why It Is Important	Ridership levels are the clearest test of the value a community sees in its transit service. This is important not just for internal evaluation but from a financial stewardship perspective as well; the federal funding formula for public transit factors in annual ridership counts.
Description	Anticipated increase in ridership as a consequence of service improvements
Methods	Ridership estimates are the most complex but one of the most important metrics used. For fixed routes, three different methods are used to estimate ridership. The first method is the elasticity value, an estimate of the percentage change in ridership in response to a one percent change transit service. This evaluation uses separate elasticities for stop improvements, frequency improvements, and vehicle revenue hour improvements. The second method is an estimate based on existing ridership. Where service hours are extended into the morning or evening, the existing ridership of the route is multiplied

	commensurately. For new service in areas without existing routes, predicted ridership is based on the performance of routes in areas with similar housing and job density. For microtransit service, predicted ridership is based on existing paratransit service operations. For vanpooling, ridership is based on 10 vanpools with 12 members each. For the K12 free fares program, ridership is based on the observed difference in youth ride counts before and after the pilot program.
Data Sources	April 2021 boarding counts on existing routes, MAPA population and employment density estimates, Metro GIS files, Metro farebox data

Criterion #9: People of color benefiting

Goal	Address equity in our region
Why It Is Important	Metro Transit has a moral and legal obligation to ensure that the benefits of transit service are distributed equitably throughout the regional population. It is important to examine the impacts to people of color because, on a local and national level, failure to do so has historically led to people of color benefiting less from infrastructure investments than white populations.
Description	Number of people of color benefiting from improvements
Methods	The metric is an estimate of people of color living within a quarter mile of stop improvements, express stops, and local service alignments; within a half mile of ORBT alignments; and within park-and-ride catchment areas. For purposes of this metric, "people of color" is defined as all those responding to the American Community Survey with a race or ethnicity other than "White Non-Hispanic."
Data Sources	American Community Survey 2015-2019 estimates, Metro GIS files

Criterion #10: Greenhouse gas emissions reduction

Goal	Promote environmental stewardship
Why It Is Important	Public transit is uniquely able to mitigate climate change impacts by providing an alternative to single-occupancy vehicle use, improving air quality, and reducing the production of greenhouse gases.
Description	Estimated reduction in carbon dioxide emission due to mode shift from cars to transit use over the next seven years
Methods	A portion of the incremental ridership in criterion #8 is assumed to result from people switching from autos to buses for a given trip. The regional travel demand model is used as a basis for converting transit trips into car trips. An FTA calculator is used to calculate metric tons of carbon dioxide saved per car trip.
Data Sources	Ridership estimates, FTA calculator, Regional Travel Demand Model

Evaluation Process: Phase One

The evaluation process for MetroNEXT was iterative. In the first stage, the full list of possible improvements was evaluated according to each of the preceding 10 criteria. New bus stop signage is an exception; although considered an important and integral element on the list from start to finish, it was not deemed sufficiently impactful to be included in geographic metrics and it was not expected to generate more ridership.

As their descriptions suggest, the metrics for most of these criteria are very similar to one another. They rely on a count of the individuals, households, or jobs located within an industry-standard buffer around each improvement. In particular, the "population benefiting" is calculated in the same way whether the improvement consists of additional bus shelters, a new bus route, or frequency improvements on an existing route. For this reason, the table displaying the results of the criteria was condensed into the format shown in Table 9.

The purpose of using geographic metrics was to identify the cumulative effect of making many different improvements. If a person living in a neighborhood of Omaha gains frequent service within walking distance of their house, that is one benefit. If that same person sees a shelter appear at their nearest stop, that is another, layered benefit. Similarly, a job served by two frequent service routes has better overall transit accessibility than a job served by only one.

Therefore, each possible improvement was evaluated separately, with its own buffer defined and resident populations or jobs summed. When reading the table, it is important to keep that in mind; the sum totals for a given scenario will be larger than the absolute number of residents, sometimes multiples of the entire service area population. The geographic metrics really estimate impact, not individuals.

Although each metric was estimated down to single-digit precision, this should not be mistaken for accuracy. The low-income, zero-vehicle, and race/ethnicity estimates were calculated using the American Community Survey, which surveys a sample population to estimate a value for each block group. Estimates for the buffers were calculated by taking a percentage of the estimate for each block group that was equal to the percentage area of the block group that the buffer crossed. The necessary assumption in this method is that populations are evenly distributed throughout a block group by area; since that cannot be true, it adds a second layer of distortion to the estimates.

The improvements were grouped into scenarios, each focusing on a different aspect of transit service. Every scenario contained the same set of core improvements deemed highest priority at this stage. Scenario A, Enhancing Rider Amenities, emphasized ORBT routes and stop improvements. Scenario B, Improving Frequency & Extending Hours, emphasized adding service to existing routes. Scenario C, Expanding Service to New Areas, emphasized geographic coverage.

Table 8. MetroNEXT Evaluation Results: Phase One

Alternative	Population Served	Jobs Served	Low-Income People	Zero-Vehicle Households	People of Color	Incremental Ridership (Month)	Incremental Ridership (Year)	CO_2 Reduction (7 Years)
Current (February 2022)	451,203	280,468	63,391	14,568	154,232	-	-	-
Core Improvements	774,194	716,600	129,206	30,031	318,279	28,363	340,356	16,159
24th Street corridor ORBT	47,210	36,762	12,680	2,861	32,262	7,172	86,059	4,086
New bus stop signage (route number/bus tracking information)	-	-	-	-	-	-	-	-
Return most fixed-routes to pre-COVID schedules	512,720	474,047	85,738	20,458	215,865	4,527	54,324	2,580
Routes 4 every 15 min all day	27,026	48,189	5,443	1,236	12,558	2,969	35,628	1,691
Route 15 every 15 min all day	57,982	120,788	8,315	1,852	21,770	3,721	44,652	2,120
Mid-day trips to Westroads on 92 Express	1,500	5,959	69	18	310	1,500	5,959	69
Microtransit Zone - Florence	17,630	8,354	4,726	590	8,833	17,630	8,354	4,726
Promotion of vanpool and 10 new vanpools	-	-	-	-	-	1,200	14,400	684
25 new bus shelters	16,690	31,924	4,017	1,171	9,929	727	8,724	414
MOBY clients ride fixed-route free								
Permanent free K12 fares	85,530	-	-	-	-	5,863	70,362	3,340
Enhancing Rider Amenities (Includes Core Improvements)	837,817	786,856	133,148	31,650	323,258	19,917	322,012	15,289
North Beltline ORBT (study only)	27,026	48,189	5,443	1,236	12,558	2,992	35,904	1,705
72nd Street ORBT (study and implementation)	27,913	30,237	3,703	1,268	8,849	18,018	216,220	10,266
NOTC lot purchase	18,199	-	4,453	-	9,297	1,500	18,000	855
25 additional bus shelters with next arrival screens	22,235	23,344	4,417	948	9,774	399	4,788	227

Alternative		Population Served	Jobs Served	Low-Income People	Zero-Vehicle Households	People of Color	Incremental Ridership (Month)	Incremental Ridership (Year)	CO_2 Reduction (7 Years)
Improving Frequency & Extending Hours (Includes Core Improvements)		1,717,929	2,081,920	306,456	79,748	728,412	15,975	191,703	9,102
15 minute frequency all day	3	27,026	22,910	5,443	1,236	12,558	2,992	35,904	1,705
	13	23,739	35,737	4,693	1,036	11,552	2,448	29,376	1,395
	30	21,458	41,639	5,139	1,398	10,530	2,588	31,056	1,474
Extended evening service			350,855	487,006	68,026	19,117	166,744	379	4,551
Expanded Saturday Service		139,993	208,024	27,831	7,866	61,981	4,324	51,888	2,464
Expanded Sunday Service		397,068	535,302	77,479	20,416	175,601	3,244	38,928	1,848
Expanding Service to New Areas (Includes Core Improvements)		841,637	821,764	123,794	30,236	306,827	9,434	113,208	5,375
Fort Street Express		15,610	157	1,587	11	2,935	330	3960	188
New 144th Street fixed route		53,306	8,136	2,604	490	8,653	1,926	23,112	1,097
Microtransit zone – Westroads NW		22,350	30,287	1,542	485	5,043	1,808	21,696	1,030
Microtransit zone – Westroads SW		21,763	28,443	1,532	432	3,120	1,808	21,696	1,030
Route 16 at 30 minutes, 7 days a week		8,787	28,718	2,011	462	4,035	3,524	42,288	2,008
Extend Route 92 to Elkhorn (replaces 92 change in core improvements)		6,140	-	193	76	476	38	456	22

Community Survey

Survey Description

From March 1 through March 11, Metro conducted a community survey in order to help prioritize the proposed improvements. The survey presented the improvements grouped together in the scenarios described above, with a very high-level summary of their scores corresponding to each MetroNEXT goal. Respondents were asked to rate both individual improvements and the scenario packages on a five-point scale from "very important" to "not important." Additional questions asked respondents to rank the five MetroNEXT goals and to share their thoughts on Omaha's current per capita transit spending.

The first wave of survey promotion took place on buses, with SRF and Metro staff riding routes and spending time at transit centers to explain and distribute surveys. This activity phase began on March 1, 2022 and concluded on March 9. Online promotion of the survey to a wider audience began the week of March 7, after a series of open houses.

The survey was designed to be self-administered. Each bus was fitted with an envelope so that riders could take their time reading and filling out the paper survey, then deposit it when they were done. The paper surveys also included a URL and QR code so that smartphone users could immediately fill out the surveys on their phones. Respondents were encouraged to complete the surveys online; however, most chose the paper version.

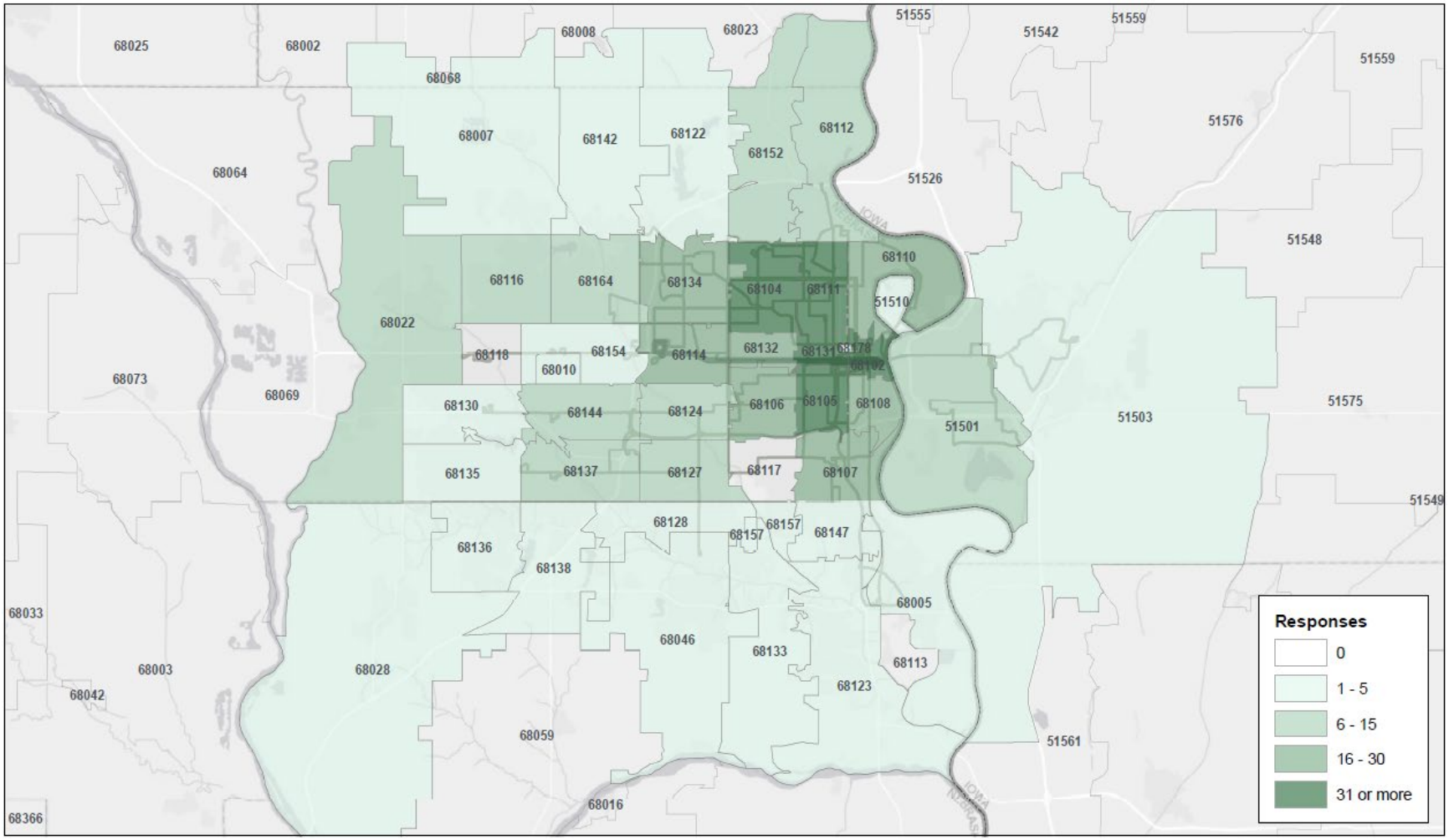
The distribution locations for surveys were chosen methodically, with two main goals:

1. Distribute as many surveys as possible.
2. Collect survey responses from every zip code in the service area.

Each route in the system was surveyed at least once. Certain routes received more attention because, taken together, they provided a combination of strong ridership and diverse zip code coverage. These included ORBT and routes 4, 8, 13, 15, 18, 24, and 30. The survey response by Zip Code is shown in Figure 1.

In both the paper and online formats, respondents had their choice of an English-language or Spanish-language survey. Six paper surveys were completed in Spanish. No online surveys were completed in Spanish.

Figure 1. Survey Response by Zip Code



Data Processing

The paper surveys were hand-entered into a duplicate SurveyMonkey questionnaire created for this purpose. Three paper surveys were excluded because the responses were not relevant to MetroNEXT.

When data collection was complete, the responses from each survey were exported from SurveyMonkey, and all responses were then combined into one Excel workbook for analysis. Although a total of 526 responses were collected, on any given question the number of responses averaged closer to 300.

Results

The first question asked respondents to rank the MetroNEXT goals in order of priority on a scale of 1 to 5, where 1 is "very important" and 5 is "not important." A majority ranked "Improve & expand connections" most highly, with "address equity in our region" coming second. The lowest-ranked goal was "Lead responsibly & collaboratively."

Figure 2. Which MetroNEXT goals are most important when prioritizing future transit projects in our community?

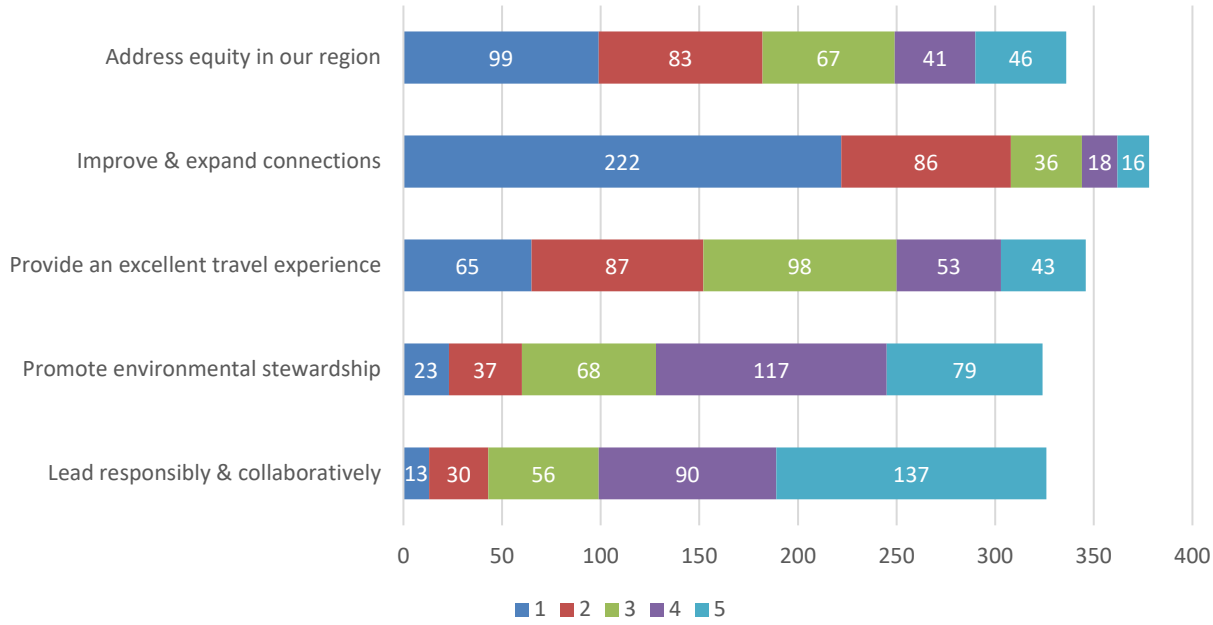
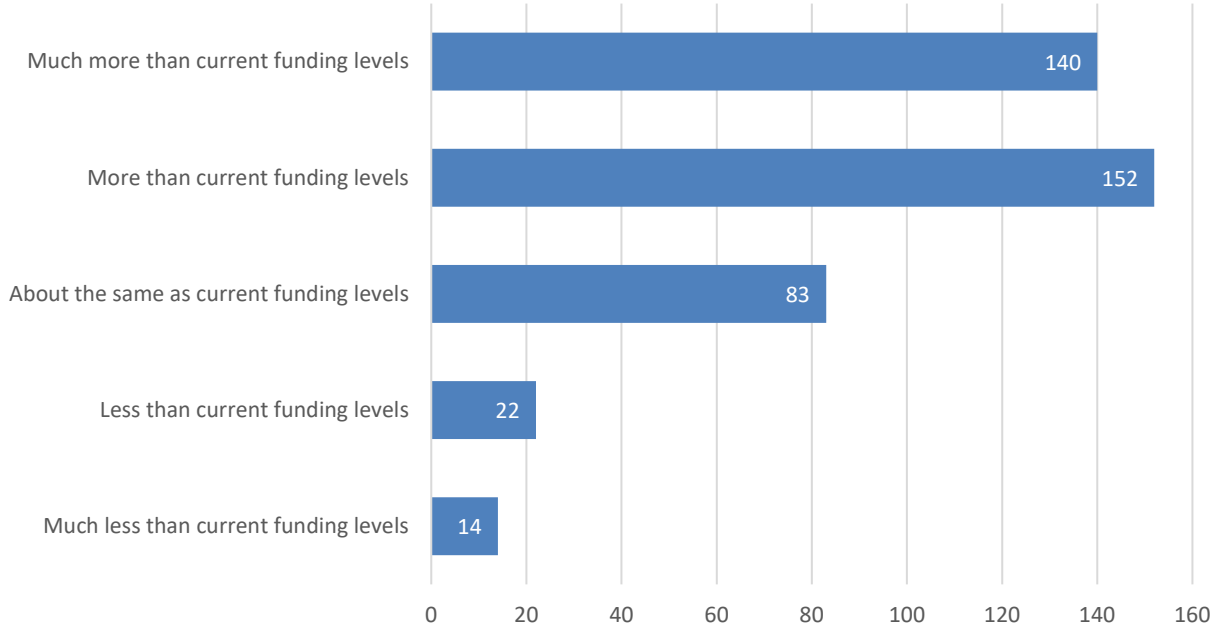
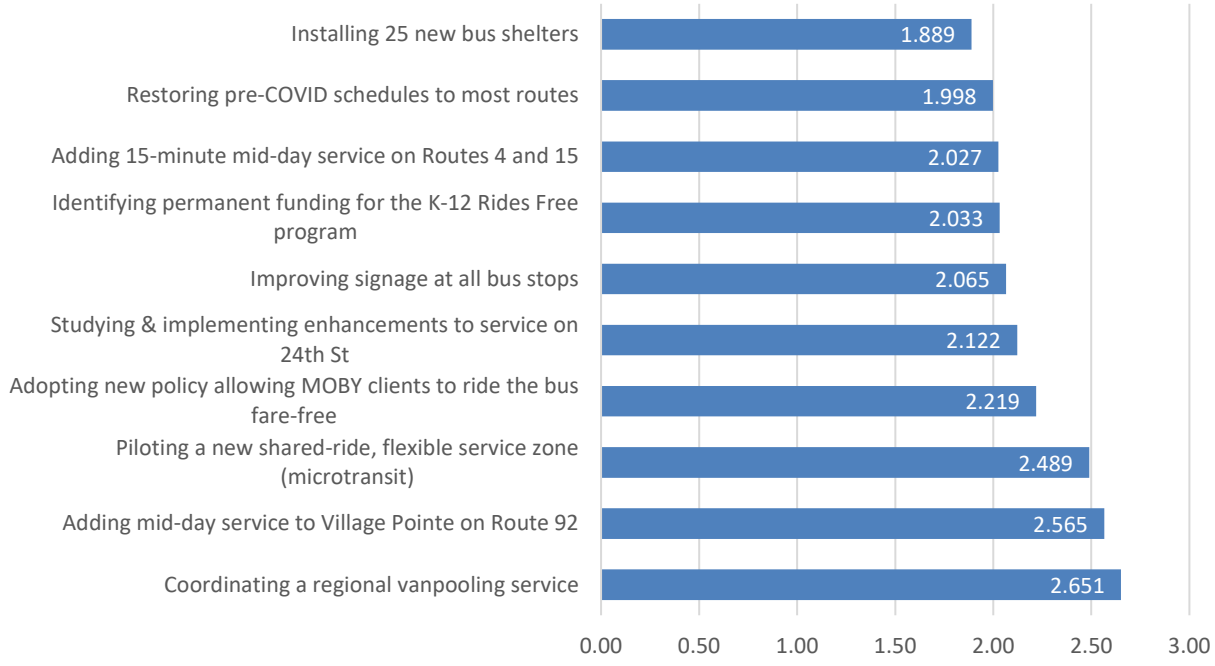


Figure 3. How much should we be investing in our transit system?



The next question asked respondents to rate each core improvement on a scale of 1 to 5, where 1 is "very important" and 5 is "not important." Figure 4 shows the average score given to each improvement. The lower the score, the more important; installing new bus shelters thus had the best average score, and regional vanpool had the lowest.

Figure 4. Core Improvement Average Scores



The next questions were scenario-specific. Respondents were asked to rate each of the individual improvements that defined the scenarios on a scale from 1 (most important) to 5 (least important). Within Scenario A, new bus shelters attracted the most positive interest. In Scenario B, a large number of respondents rated all three improvements highly, with very few marking 4 or 5 for any of the alternatives. In Scenario C, the standout result was a very high score for service to Eppley Airfield. The other service expansions in Scenario C received relatively few responses, trending more neutral.

Figure 5. Scenario A Scores

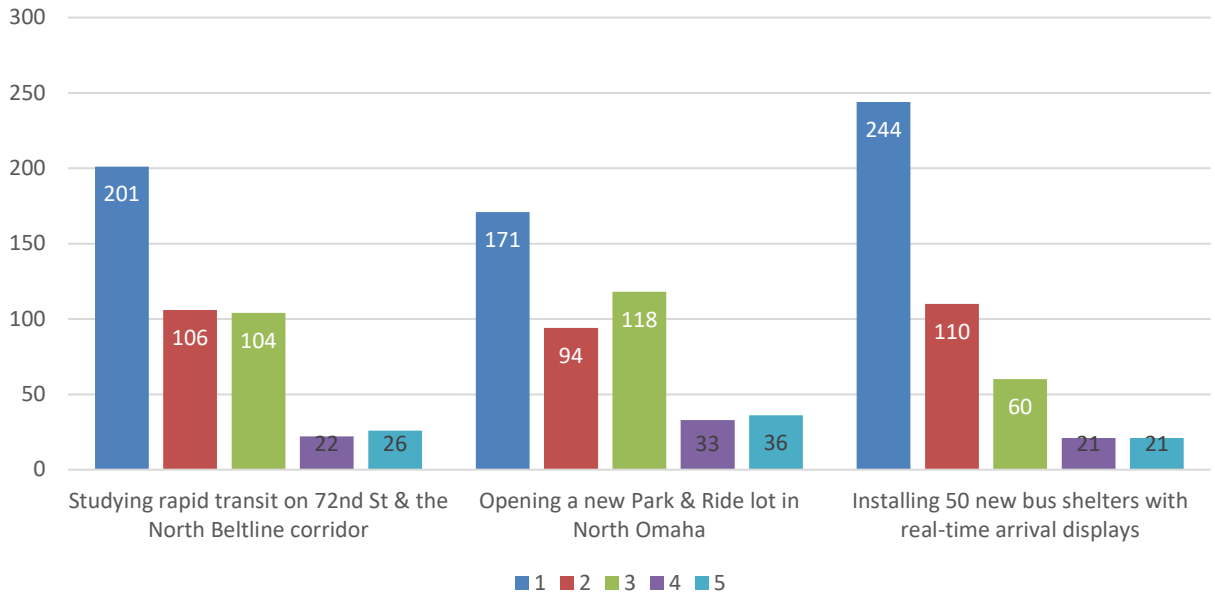


Figure 6. Scenario B Scores

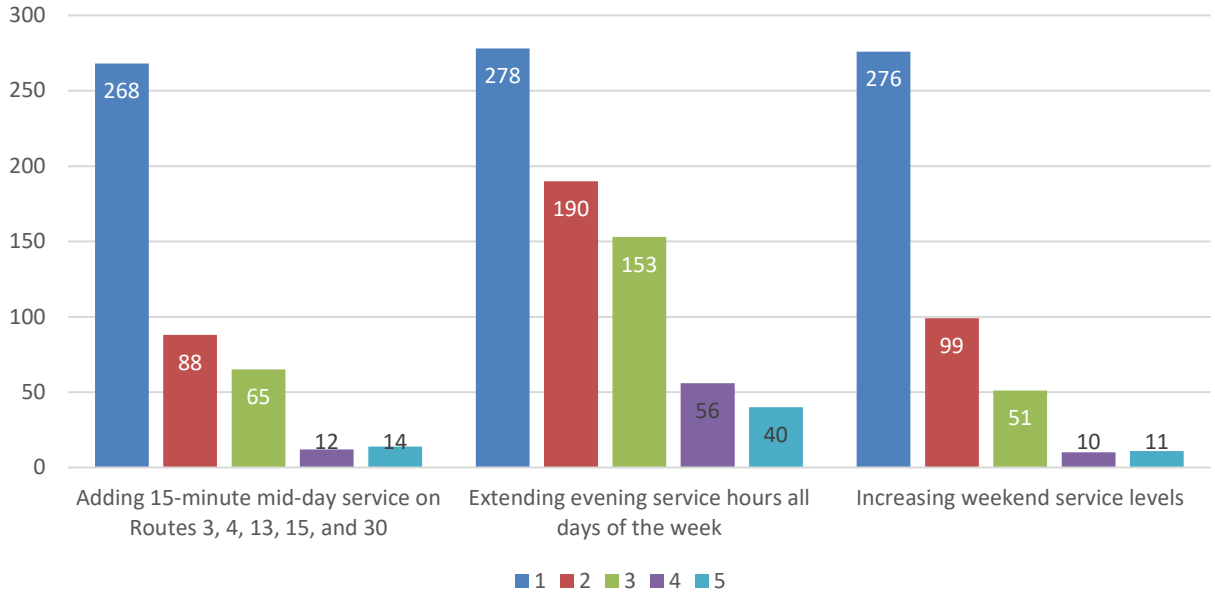
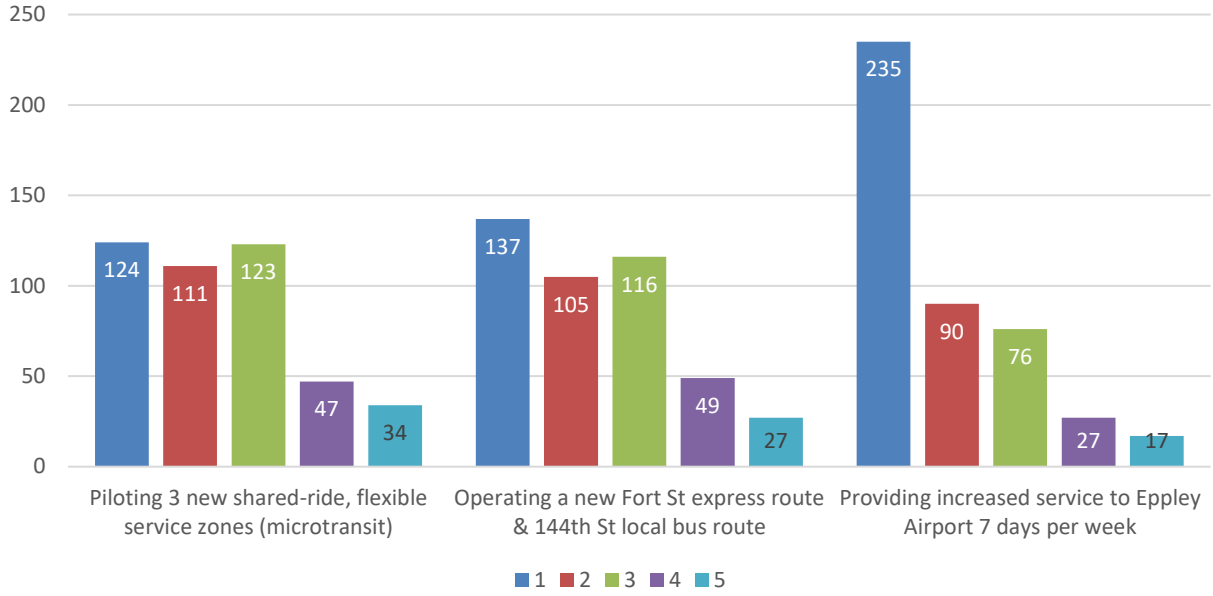
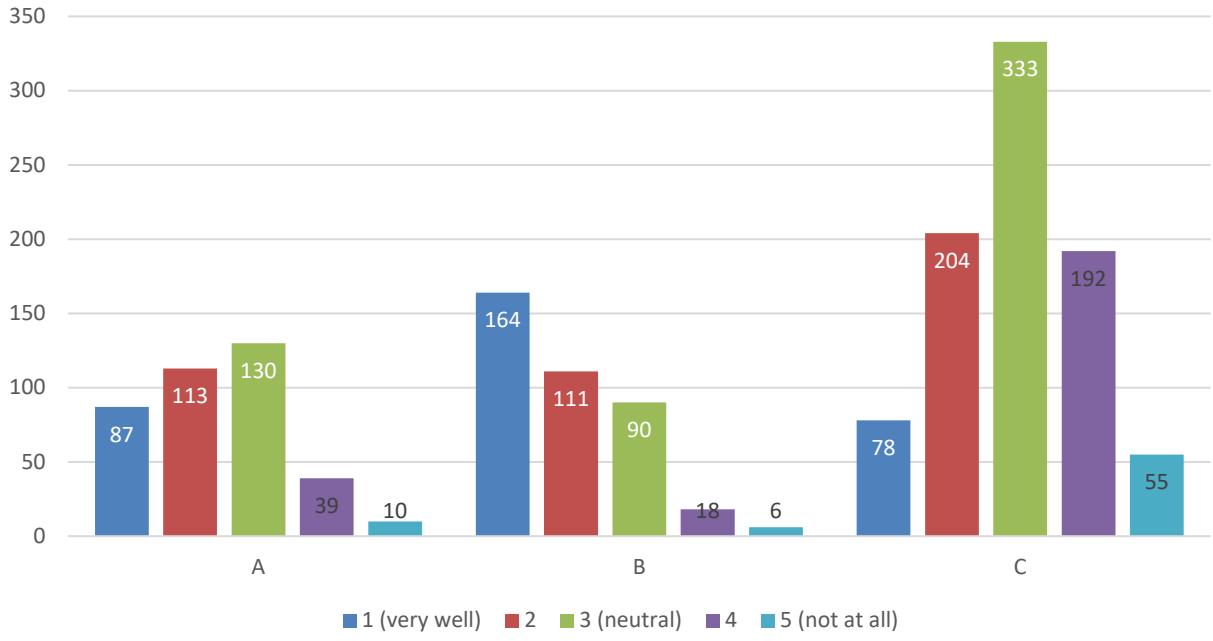


Figure 7. Scenario C Scores



The scenario-specific questions also asked for an overall score for the scenario as a whole. Comparatively few respondents filled out this part of the survey. Among those who did, the response pattern was broadly similar to the project-specific ratings: top marks for Scenario B and more neutral marks for Scenario C.

Figure 8. How well does scenario serve region's top transit needs?

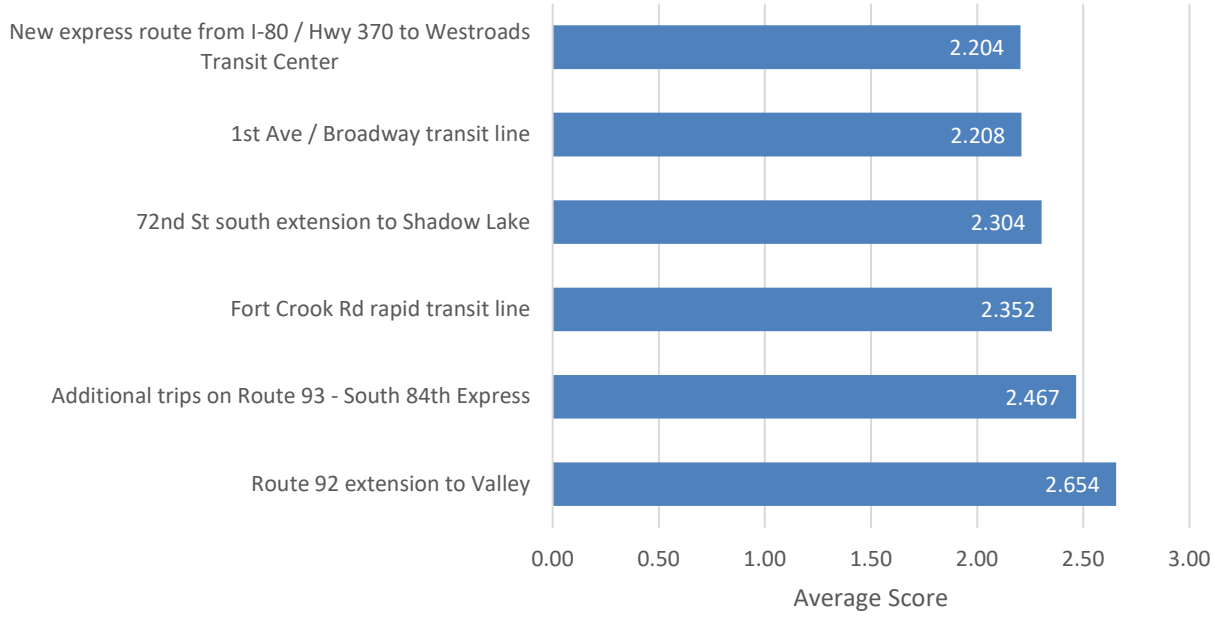


The final question offered respondents the opportunity to weigh in on projects outside Metro's current service area. The question read:

"MetroNEXT also considers optional service to major regional destinations outside Metro's current service area. Which potential projects are the highest priority for further exploration through partnership with other communities? Rate each project from 1 (most important) to 5 (least important)."

The highest-scoring service in this category was the express route from I-80/Hwy 370 to Westroads Transit Center, followed closely by the 1st Ave/Broadway transit line.

Figure 9. Projects Outside Service Area



Evaluation Process: Phase 2

Ranking

In the second evaluation phase, the results of the community survey were used to inform the selection of improvements for the scenario ultimately chosen. This phase added the following elements:

- A binary 1 or 0 score for improvements that enhance riders' experience in ways not fully captured by the original criteria. These improvements primarily address stop amenities such as shelters and real-time arrival signs, but they also include free fare policies for MOBY clients and K12 students.
- The average score each improvement received in the community survey.
- An estimated cost per rider, calculated by dividing the estimated cost of each improvement by the incremental ridership anticipated.

With the addition of these criteria, the improvements were then ranked by the number of criteria on which they scored highly. The results of this ranking are shown in Table 10. The top-ranking scores in each category are shown in green.

Table 9. MetroNEXT Evaluation Results: Phase Two

Improvement	Rider Experience	Population Benefiting	Jobs with Improved Access	Low-Income People Benefiting	Zero-Vehicle Households Benefiting	People of Color Benefiting	Cost per Rider	Survey Score	Incremental Ridership (Year)	CO_2 Reduction Over 7 Years (Metric Tons)
Current		451,203	280,468	63,391	14,568	154,232	-	-	-	-
Return most fixed routes to pre-Covid		512,720	474,047	85,738	20,458	215,865	$49	1.998	54,324	2,580
Expanded Saturday service		139,993	208,024	27,831	7,866	61,981	$4	1.615	51,888	2,464
15		46,327	120,788	5,551	2,377	11,018	$54	1.694	44,652	2,120
Expanded Sunday service		397,068	535,302	77,479	20,416	175,601	$48	1.615	38,928	1,848
4		30,183	48,189	5,063	1,204	11,230	$38	1.694	35,628	1,691
Extended evening service		350,855	487,006	68,026	19,117	166,744	$230	1.608	4,551	216
24th Street ORBT	1	47,210	36,762	12,680	2,861	32,262	$59	2.122	86,059	4,086
3		27,026	22,910	5,443	1,236	12,558	$49	1.694	35,904	1,705
30		21,458	41,639	5,139	1,398	10,530	$51	1.694	31,056	1,474
13		23,739	35,737	4,693	1,036	11,552	$41	1.694	29,376	1,395
Permanent free K12 fares	1	85,530	0	0	0	0	$2	2.033	70,362	3,340
Route 16 at 30 minutes, 7 days a week		8,787	28,718	2,011	462	4,035	$32	1.879	42,288	2,008
72nd Street ORBT	1	27,913	30,237	3,703	1,268	8,849	$25	2.054	216,220	10,266
25 new shelters	1	16,690	31,924	4,017	1,171	9,929	$2	1.889	8,724	414
North Beltline ORBT	1	11,680	7,252	2,730	754	5,893	$65	2.054	83,005	3,941
25 additional bus shelters	1	22,235	23,344	4,417	948	9,774	$6	1.827	4,788	227

Improvement		Rider Experience	Population Benefiting	Jobs with Improved Access	Low-Income People Benefiting	Zero-Vehicle Households Benefiting	People of Color Benefiting	Cost per Rider	Survey Score	Incremental Ridership (Year)	CO_2 Reduction Over 7 Years (Metric Tons)
Promotion of vanpool and 10 new vanpools			0	0	0	0	0	$3	2.651	14,400	684
NOTC Park & Ride			18,199	0	4,453	0	9,297	$1	2.268	18,000	855
New bus stop signage		1	0	0	0	0	0	.	2.065	-	-
MOBY clients ride fixed-route free		1	0	0	0	0	0	.	2.219	-	-
Additional trips to WTC on 92			1,500	5,959	69	18	310	$57	2.565	4,512	214
Florence Microtransit Zone			17,630	8,354	4,726	590	8,833	$70	2.489	21,696	1,030
92 to Elkhorn			7,640	5,959	261	95	786	$1,657	2.565	456	22
Fort Street Express - 4 daily trips			15,610	157	1,587	11	2,935	$170	2.364	3,960	188
144th Street fixed route			9,197	8,136	458	91	1,771	$54	2.364	23,112	1,097
Microtransit	Westroads NW		22,350	30,287	1,542	485	5,043	$70	2.444	21,696	1,030
	Westroads SW		21,763	28,443	1,532	432	3,120	$70	2.444	21,696	1,030

Refinement

Ranking by score was a significant step in arriving at a final list of projects. It helped to identify the projects that were most impactful and/or most popular with the community. However, after the ranked list was developed, considerable work went into composing the final scenario. As costs were estimated and re-balanced to fit within the anticipated budget of the Regional Transit Authority, certain improvements were adjusted to make them more affordable. In addition, it became clear that the top-ranked projects did not serve the western end of Omaha. The final list of projects adds geographic balance.

Final List of Projects

The following is the list of projects included in the final scenario presented to the Metro Board of Directors. If a service enhancement applies to ORBT, it should be understood that this includes all ORBT routes included in the final scenario: Dodge, 24th Street, and 72nd Street.

Return most fixed routes to pre-COVID service levels

This will add an hour to morning service and an hour in the evening on all fixed routes; increase frequency on routes 5, 14, 26, 35, and 36; and add trips to express routes 93, 94, 95, 97, and 98.

Expanded Saturday service

ORBT and Route 11 will have longer service days on Saturdays, representing a service hour increase of approximately 15 percent.

Increased frequency on Route 15 (Short)

Route 15 will run at 15-minute frequencies during the mid-day period on weekdays between Aksarben and Downtown. The schedule between Aksarben and Oakview will remain the same.

Expanded Sunday service

Routes 3, 4, 13, 15, 18, 26, 30, 35, 36, and ORBT will see modest expansions to Sunday service. ORBT will have Sunday service that matches its current Saturday hours. The total number of regular fixed route vehicle revenue hours offered on Sundays will increase 41 percent from 190 to 268.

Increased frequency on Route 4

Route 4 will run at 15-minute frequency during the morning peak and mid-day period on weekdays.

Increased frequency on Route 3

Route 3 will run at 15-minute frequency during the morning peak and mid-day period on weekdays.

Increased frequency on Route 13

Peak-hour service on Route 13 will double to 15-minute frequency between downtown and South Omaha Transit Center. There will be 30-minute frequency between SOTC and Aksarben Transit Center.

Expanded service on Route 16

Route 16 will operate at 30-minute frequency seven days a week.

Expanded evening service

The service day will be extended by a half hour in the evening on routes 3, 4, 11, 13, 15, 18, 24, 26, 30, 35, 36, and Dodge ORBT. This was evaluated separately from the improvement that would return most fixed routes to pre-COVID service levels; since both were chosen for implementation, the cumulative effect will be to extend evening service by 1.5 hours on the listed routes.

24th Street ORBT or enhanced bus

Enhanced service on 24th Street will be studied and implemented. This service may be very similar to the Dodge Street ORBT route; however, the needs of the community living and working along 24th Street will inform the final service design.

Increased frequency on Route 30

Route 30 will run at 15-minute frequency during the morning peak on weekdays. During peak hours, it will be extended along McKinley to the Florence Industrial Park. The industrial park was the target destination of a proposed first microtransit pilot, as service to this area has been requested for some time, but is difficult to provide because the current infrastructure does not allow for safe sidewalk bus stops. Microtransit scored poorly in the community survey and across the evaluation metrics. Metro will work with employers to find or build suitable bus stop locations.

Route 92 extension to Elkhorn

All trips on Route 92 will travel between Westroads Transit Center and a new stop at Metropolitan Community College – Elkhorn. One mid-day trip will be added to the schedule as well.

Fort Street Express

A new express route will run from Westroads Transit Center to 156th and Fort Street. The Fort Street Express will replace the current Route 98 and will run eight trips a day, four in the morning and four in the evening.

50 new shelters

A total of 50 stops will receive shelters where there were previously none. All 50 shelters will include solar-powered screens with real-time arrival updates.

72nd Street ORBT

A third rapid transit route along 72nd Street will be studied and, if feasible, constructed.

Promotion of vanpool

Metro will partner with the Nebraska Department of Transportation to support vanpool programs for Omaha employers/employees who find that transit does not meet their commute needs.

New bus stop signage

The signage at all current bus stops in the system will be improved to provide stop numbers and schedules.

MOBY clients ride fixed-route free

Metro customers who are eligible for MOBY will have the option of riding fixed-route buses for zero fare.

Permanent free K-12 fares

Since summer of 2021, K-12 students have been able to ride Metro for free, thanks to a pilot program funded by a grant from a local philanthropic organization. This has been a popular program and will seek funding to be included in Metro operating budget going forward.

Final Evaluation

For the sake of comparison, the metrics from Phase 1 were applied to the final scenario. The results are shown in Table 11. Despite some downward revision of proposed service hour increases and commensurately smaller impact areas or ridership increases, the selection of top-ranked projects for the list resulted in high scores on all criteria.

As before, the total score is the result of layering many overlapping geographic metrics on top of one another. The purpose of this method is to capture the multilayered impact of multiple improvements near households or jobs; if a new shelter is placed on a route that also receives a boost in weekday frequency and Sunday hours, all those separate benefits should be counted.

The downside of this approach is that outputs like Table 11 have the potential to be confusing if the underlying methodology is not well understood. It is not the case that 1,614,929 individuals have improved transit service as a result of implementing the Final Scenario. That number would be far too large for the metro area. Rather, when each service improvement is added to the Final Scenario, the entire population it serves is added to a total culminating in 1,614,929.

Table 10. Final Scenario with Original Evaluation Criteria

Alternative		Population Served	Jobs Served	Low-Income People	Zero-Vehicle Households	People of Color	Incremental Ridership (Month)	Incremental Ridership (Year)	CO_2 Reduction (7 Years)
Base Conditions (February 2022)		451,203	280,468	63,391	14,568	154,232	-	-	-
Previously Considered Scenarios	Enhancing Rider Amenities	837,817	786,856	133,148	31,650	323,258	19,917	322,012	15,289
	Improving Frequency & Extending Hours	1,717,929	2,081,920	306,456	79,748	728,412	15,975	191,703	9,102
	Expanding Service to New Areas	841,637	821,764	123,794	30,236	306,827	9,434	113,208	5,375
Impacts of Final Scenario Improvements		**1,614,929**	**1,893,059**	**360,260**	**94,731**	**862,428**	**45,169**	**542,033**	**26,149**