

ALIGNMENT AND MODE SCREENING REPORT



East-West
Transit Study
RideKC

May 19, 2023

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Alignment and Mode Screening Report

INTRODUCTION

The Kansas City Area Transportation Authority (KCATA), in cooperation with several project partners, evaluated an east-west high-capacity transit connection in an east-west study area in midtown, Kansas City, Missouri and Kansas City, Kansas.

The purpose of the study is to provide a roadmap to help fill east-west transportation gaps, connecting into primary north-south transit corridors, as well as give communities in Wyandotte County and Eastern Jackson County the opportunity to leverage regional assets. The extension of the streetcar south to 51st Street and Brookside Boulevard and north to the Berkley Riverfront makes an east-west connection much more impactful to areas on both sides of the streetcar spine. This study examined the technical and financial feasibility of an east-west connection and will help determine next steps to make it a reality.

To the west, The University of Kansas Health System is an ever-growing medical campus that is a regional resource and employment hub. The high demand to access this area has also created a growing parking challenge, and stronger multimodal connections could help to mitigate the parking supply problem.

To the east is the Truman Sports Complex. Although recent developments have substantiated past claims of potential relocation of the Kansas City Royals, this is still a high priority area for increased transit access. Regardless of speculation around a downtown baseball stadium, this area continues to be a significant node for the region. The high demand to access this area has also created a growing parking challenge, and stronger multimodal connections could help to mitigate the parking supply and congestion problem.

Within the study area, alternative transit corridors were created based on previous studies that established the following corridors as possible high-capacity transit opportunities:

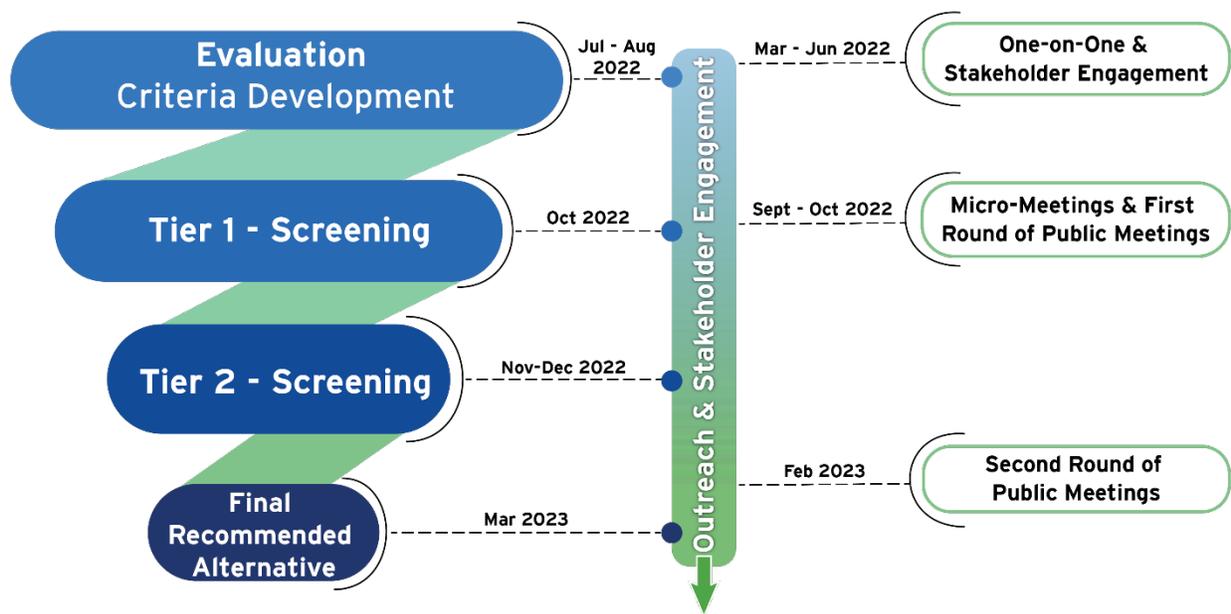
- Linwood Boulevard
- 31st Street
- Armour Boulevard/35th Street
- 39th Street
- 43rd Street
- U.S. 40 coming in north of the Truman Sports Complex
- Utilizing Stadium Drive through the Leeds Neighborhood

The study began with these corridors, and together with early public engagement, carried forward a set of alternatives for evaluation, and through the study process, determine a preferred alignment and mode of a high-capacity transit connection to be carried forward for implementation.

STUDY TIMELINE AND PUBLIC ENGAGEMENT

The study kicked off in May 2022 with a one-year study period. The major components of the study included three rounds of public engagement alongside the technical evaluation, including development of the Purpose and Need and guiding principles, screening criteria and technical screening of alignments to reduce the pool of alternatives and reach a final recommendation. This process is shown in *Figure 1*.

Figure 1: Study Milestones and Public Engagement Timeline



Public engagement was done throughout the life of the project and were grouped into three major phases as project milestones were reached. These engagement phases and the major outcomes that informed the study follow.

One-on-One Meetings and Stakeholder Engagement

This round of outreach kicked off the study to identify the transportation opportunities, needs, and barriers within study area communities. This outreach guided the Purpose and Need of the study and supporting Guiding Principles Report.

Impact 1: The public feels excitement for an East-West high-frequency transit investment with the positive economic and community impacts that can result.

Impact 2: The public wants a transit investment that is funded in an equitable manner and minimizes displacement of existing residents and businesses.

Impact 3: The public is supportive of the long-term vision of an east-west connection, but expressed an immediate need for more service reliability on the existing transit network

Micro-Meetings and First Round of Public Meetings

This round of outreach took place to get feedback on the screening criteria developed for the study and for reactions to the alignments developed for evaluation.

Impact 1: The public's importance of the various screening criteria and the alignment alternatives aligned with the outcomes of the technical screening.

Impact 2: The public also valued with equal important the 39th Street alignment in the Middle portion of the study area, which was carried forward in addition to the technical screening top-ranked corridors.

Second Round of Public Meetings

This final round of outreach presented the two Scenarios that resulted from the Tier 1 screening for input on the key considerations, costs, funding options and implementation timelines.

Impact 1: The public supports a Streetcar as the mode for an east-west high-capacity transit connection.

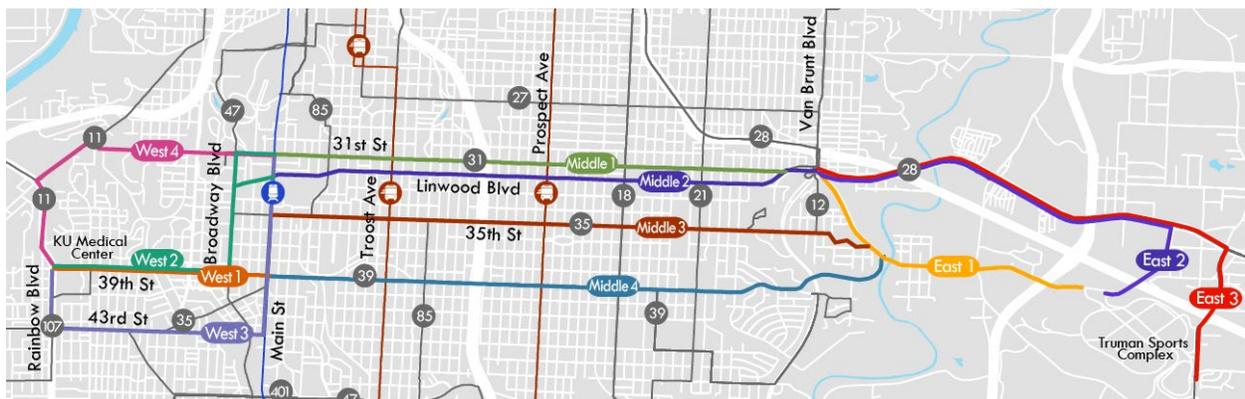
Impact 2: The public supports a connection between 39th Street and 31st/Linwood via Main Street over Broadway Boulevard.

Details on the engagement efforts, including the number of surveys, meetings, participants and responses to surveys and themes identified during meetings are included in the *East-West Transit Study Comprehensive Engagement Summary*.

TIER 1

The study team began with a set of alternatives that were developed from previous planning studies and with initial stakeholder engagement shown in *Figure 2*. The study was divided into three areas, West, Middle, and East based on the overall street, land use and development type that characterize each and to allow for the transit connection to optimally serve each area independent of the others.

Figure 2: East-West High Capacity Transit Connection Alternatives



The transit connection alternatives include:

From The University of Kansas Health System to Main Street:

- West-1 begins at the intersection of 39th Avenue and Rainbow Boulevard, then proceeds on 39th Street to Broadway Street, then on Broadway Street to as far as 31st Street.
- West-2 begins at the intersection of 39th Avenue and Rainbow Boulevard, then proceeds on 39th Street to Main Street, then on Main Street to as far as 31st Street.
- West-3 begins at the intersection of 39th Avenue and Rainbow Boulevard, then proceeds on Rainbow Boulevard until 43rd Avenue, then on 43rd Street to Main Street, then on Main Street to as far as 31st Street.
- West-4 begins at the intersection of 39th Avenue and Rainbow Boulevard, then proceeds on Rainbow Boulevard to Southwest Boulevard and continues onto 31st Street where it then links into the West-1 segment.

From Main Street to Van Brunt Boulevard/Hardesty Avenue:

- Middle-1 is 31st Street between Main Street and Van Brunt Boulevard/Hardesty Avenue.
- Middle-2 is Linwood Boulevard between Main Street and 31st Street, and 31st Street between Linwood Boulevard and Van Brunt Boulevard/Hardesty Avenue.
- Middle-3 is 35th Street between Main Street and Stadium Drive.
- Middle-4 is 39th Street/Leeds Trafficway between Main Street and Stadium Drive

From Van Brunt Boulevard/Hardesty Avenue to the Truman Sports Complex:

- East-1 is to follow Stadium Drive and terminate at Chiefs Way.
- East-2 is to follow US 40, then follow Stadium Drive and terminate at Royals Way.
- East-3 is to follow US 40 to Blue Ridge Cutoff and terminate at Royals Way (Lot L).

Screening

The alignment options underwent Tier 1 technical screening, which included measuring outcomes from a set of 18 criteria and from feedback gained during stakeholder outreach. The screening criteria were established based on the “Purpose and Need” for the project and also were presented to the public for feedback.

The 18 Tier 1 technical screening criteria include:

1. Increase connections to other transit services
2. Improve rider access to the transit network
3. Serve the greatest number of transit riders
4. Increase the number of people who use transit over driving
5. Achieve the fastest travel time through the corridor
6. Avoid options with project costs that are far above average for transit projects
7. Avoid impacts to other roadway uses (driving lanes or parking lanes)
8. Avoid costly obstacles such as bridges or major utilities
9. Avoid private property acquisition due to right-of-way space constraints
10. Existing population density
11. Existing employment density
12. Future population density
13. Future employment density
14. Connections to affordable housing

15. Connections to key activity centers
16. Connections to health care facilities
17. Connections to planned development projects
18. Connections to planned development projects with a cost of \$100,000 or more

Criteria outcomes were based on data inputs that were normalized for a possible score of 1 to 10. Those outputs were weighted based on the criterion’s support of the Purpose and Need and averaged, resulting in a score and ranking for each alignment alternative. The score and rank are shown in *Figure 3*. The scores for each individual criterion and supporting data inputs are included in Attachment A.

Figure 3: Tier 1 Alignment Score and Rank

Alignment Alternative	Score	Rank
West 1 39 th – Broadway to Main	7.29	1
West 2 39 th to Main	6.33	2
West 3 43 rd to Main	5.73	3
West 4 Rainbow Blvd-SW Blvd-31 st St	5.11	4
Middle 2 Linwood	8.67	1
Middle 1 31 st Street	8.18	2
Middle 4 39 th Street	6.36	3
Middle 3 35 th Street	6.29	4
East 3 US 40 – Blue Ridge Cutoff	7.40	1
East 1 Stadium Drive	6.02	2
East 2 US 40 – Stadium Drive	5.82	3

Public Feedback: Micro-Meetings and First Round of Public Meetings

The public feedback on the screening criteria resulted in a preference for criteria that they public considered the most important or the criteria that should be weighted by distributing five votes. The public found to be important 1) Increase connections to other transit services, 2) Improve rider access to the transit network, 3) Serve the greatest number of transit riders, 4) Increase the number of people who use transit over driving, and 5) Connections to key activity centers. The public was also asked about which alignment would serve them the most, with the results of both feedback exercises included in *Figure 4* and *Figure 5*

Figure 4: Public Feedback on Criteria Preferences

Criteria	Count of Responses
Increase the number of people who use transit over driving	136
Connections to key activity centers	96
Increase connections to other transit services	91
Serve the greatest number of transit riders	89
Improve rider access to the transit network	83
Future population density	64
Achieve the fastest travel time through the corridor	63
Connections to health care facilities	63
Existing population density	57
Existing employment density	47
Future employment density	46
Connections to affordable housing	40
Connections to planned development projects	14
Avoid impacts to other roadway uses (driving lanes or parking lanes)	12
Avoid private property acquisition due to right-of-way space constraints	12
Connections to planned development projects with a cost of \$100,000 or more	11
Avoid options with project costs that are far above average for transit projects	8
Avoid costly obstacles such as bridges or major utilities	1

Figure 5: Public Feedback on Alignment Alternatives by Area (West, Middle and East)

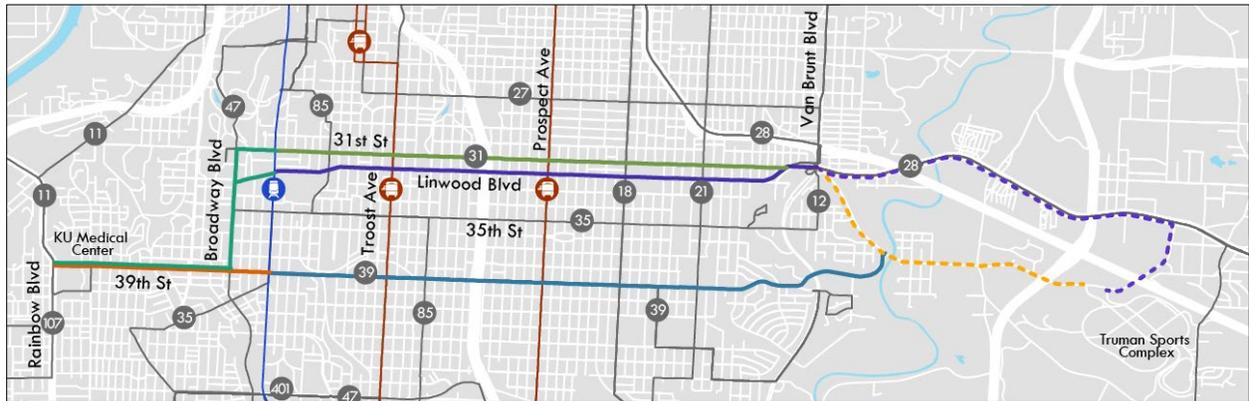
Alignment Alternative	Responses
West 1 39th – Broadway to Main	202
East 1 Stadium Drive	175
Middle 4 39th Street	146
Middle 2 Linwood	144
West 2 39 th to Main	115
Middle 1 31 st Street	98
East 3 US 40 – Blue Ridge Cutoff	73
West 4 Rainbow Blvd-SW Blvd-31 st St	71
Middle 3 35 th Street	68
East 2 US 40 – Stadium Drive	68
West 3 43 rd to Main	59

The public’s preferences aligned with the ranking of the technical screening criteria with the exception of the preference for 39th Street in the Middle segment, which was carried forward for further evaluation. Additional detail on outreach meetings conducted and number of participants in meetings and online are available in the *RideKC East-West Transit Study Public Engagement Report* in Attachment B.

Tier 1 Alternatives

The Tier 1 screening, including technical screening and public feedback, narrowed the pool of alignment alternatives from 11 to seven based on the top two scoring alternatives per area, West, Middle and East and the addition of 39th Street in the Middle. The East 3 (US-40 to Blue Ridge Cutoff) alignment was substituted with the East 2 (US-40 to Stadium Drive) alignment in order to offer a fairer comparison between those two remaining East alignment options with regard to their alignment length. The seven criteria that concluded from Tier 1 are shown in *Figure 6*.

Figure 6: Tier 1 Alignment Alternatives



The East alignments were identified for service-only improvements and are not recommended to have a capital investment in stations due to the low ridership potential of this area of the corridor.

The seven alignment alternatives were organized into three end-to-end alignment alternatives that represent the total number of practical alternatives possible from the west end of the corridor to the east end of the corridor using any combination of the seven alignment alternatives. These three alternatives are shown in Figure 7.

Figure 7: End-to-End Alignment Alternatives

Alternative 1: 39th – 31st/Linwood – US 40



Alternative 2: 39th – 31st/Linwood – Stadium Drive



Alternative 3: 39th - 39th - Stadium Drive



TIER 2

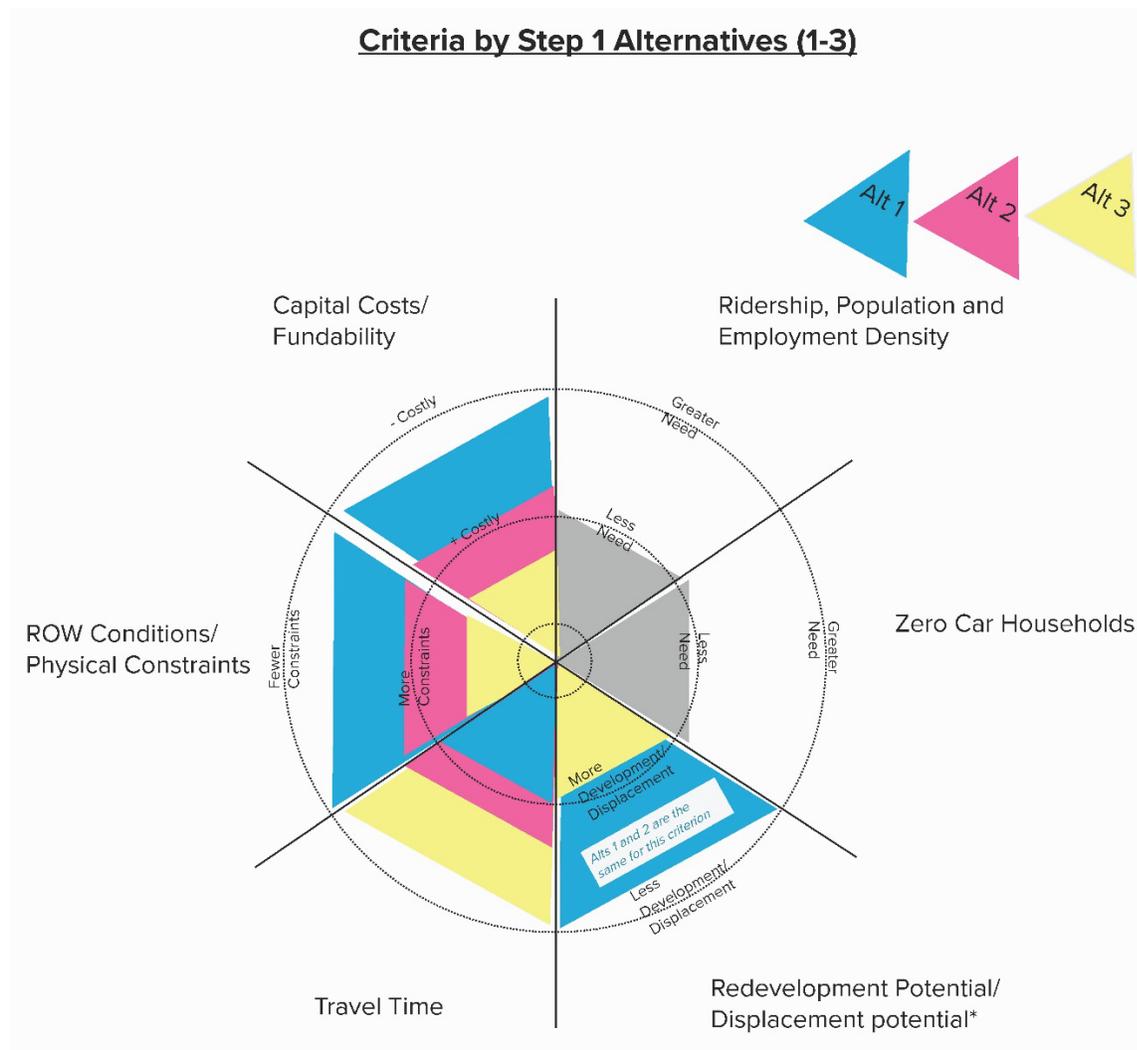
Tier 2 screening focused on determining mode and further reducing the pool of alignment alternatives.

Screening

A refined set of the Tier 1 criteria, plus additional criteria, were identified to differentiate from among “scenarios,” defined as the high-capacity transit connection alternatives defined by both alignment and mode: Streetcar or MAX (the RideKC-branded Bus Rapid Transit service). The criteria established takeaways on costs, funding, ridership potential, land use, physical/engineering constraints, equity, and community goals to conclude the Tier 2 screening with two, high-capacity transit connection Scenarios.

Outcomes of each alignment and each mode were analyzed based on the Tier 2 criteria as shown in *Figure 8*.

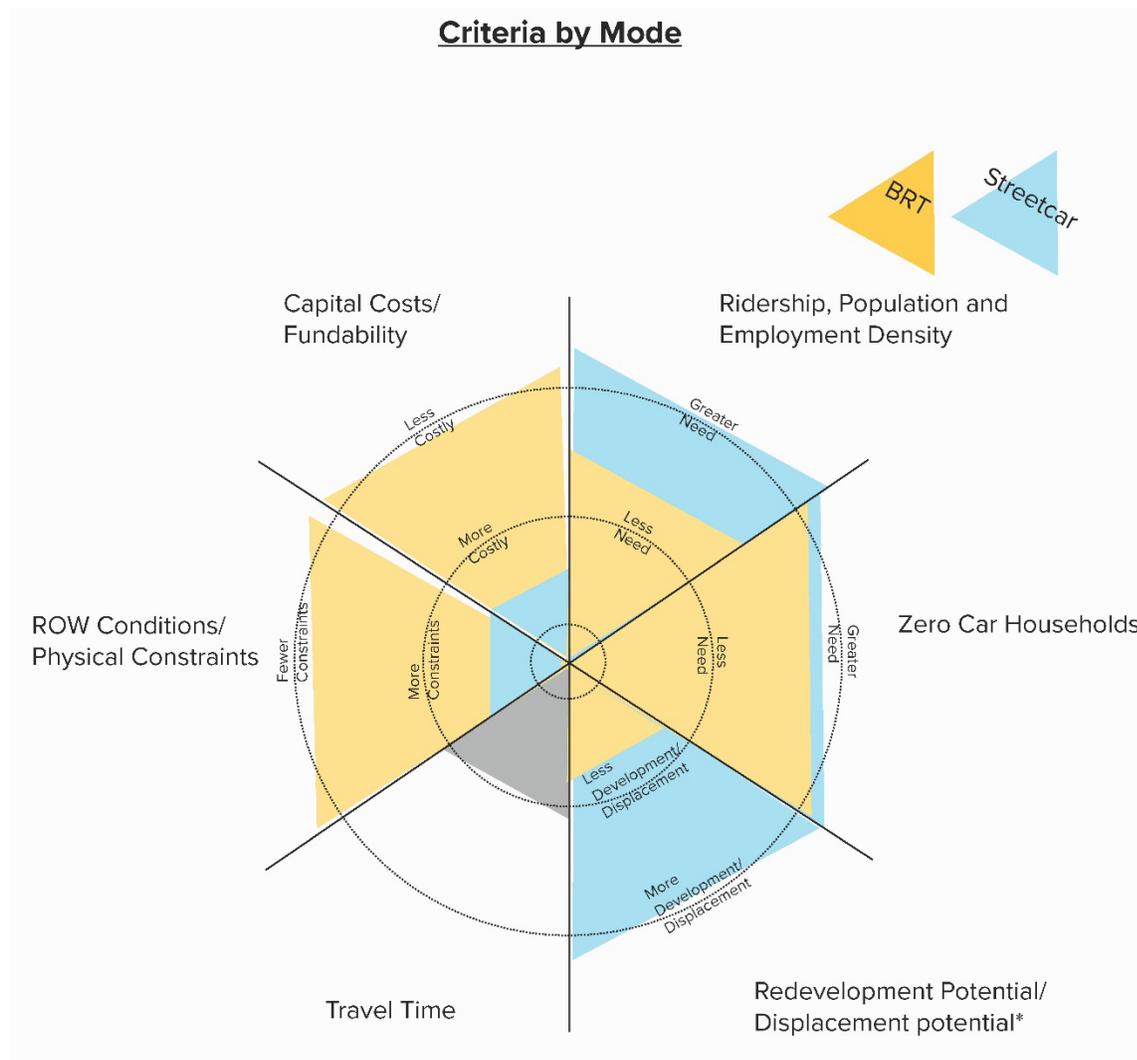
Figure 8: Outcomes by Alignment Alternatives 1, 2 and 3



The following are the takeaways from the outcomes by alignment alternative:

- Alternatives 1 and 2 offer moderate risk of residential displacement and the greatest level of commercial displacement while, conversely, Alternative 3 has the greatest risk of residential displacement and moderate risk of commercial displacement.
- Alternative 3 is optimal for cost per mile as the straightest alignment from east to west followed by Alternative 2 and 1, but costs are likely to fluctuate meaningfully once accounting for physical constraints.
- Alternative 1 has the most ROW and the least risk of physical constraints due to Alternative 2 and 3 Stadium Drive challenges and the narrow ROW of 39th Street.
- Travel Times vary by Alternative
- Ridership potential, Population and Employment density, and Zero Car Households are all comparable

Figure 9: Outcomes by Mode Alternatives, Streetcar or BRT



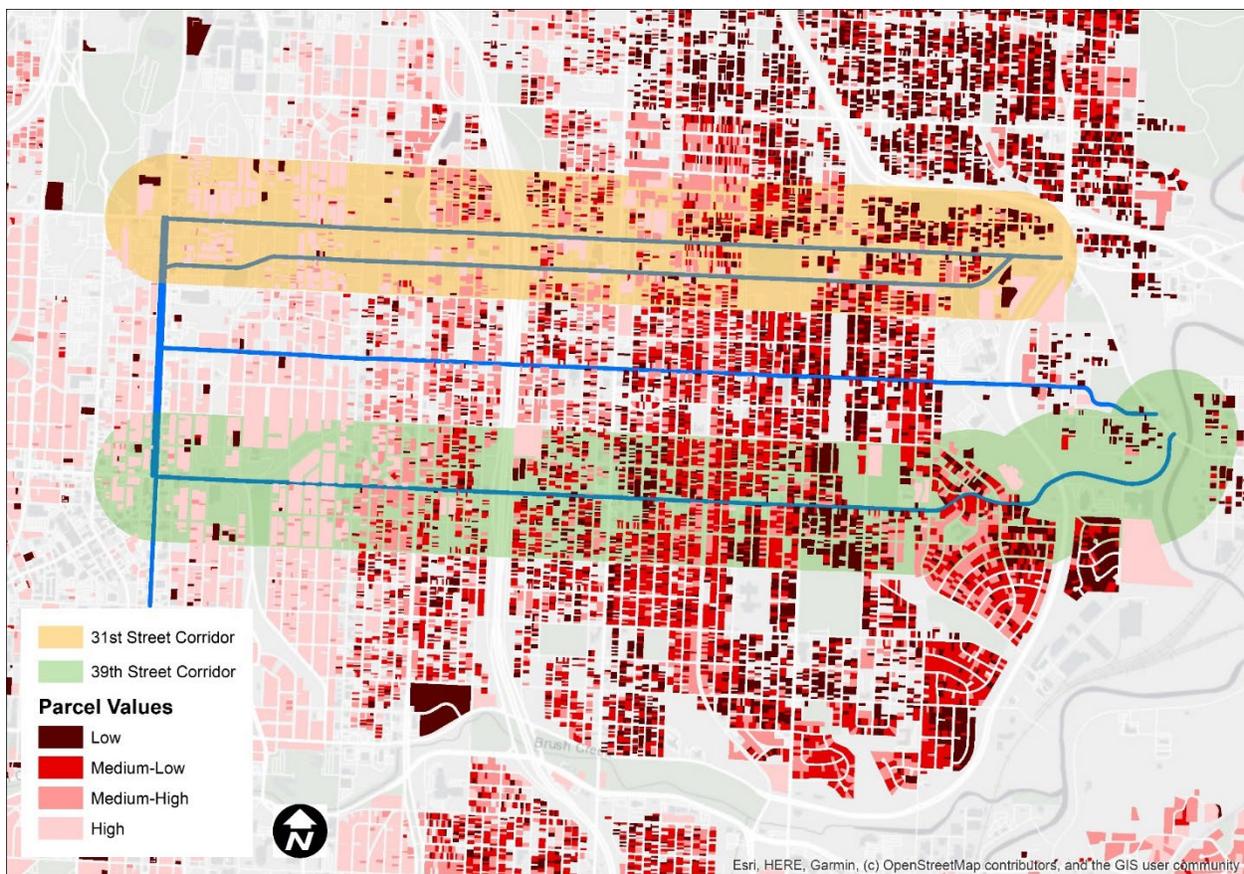
*Assumes status quo for land use and development policies

The following are the takeaways from the outcomes by mode alternative:

- BRT is optimal for costs, fundability, and ROW conditions/physical constraints.
- Streetcar is optimal in serving strong density and ridership and where those will grow.
- Streetcar is optimal for influencing development and sub-optimal for reducing displacement. Inversely, BRT is sub-optimal for development but will have less displacement impacts. (Assumes no anti-displacement policies are advanced.)
- Travel Times are comparable across alternatives.

Further analysis considered the equity implications of the Middle alignment options, where there are differences in development and displacement potential. *Figure 10* shows the residential property values within the Middle area of the corridor. The dark hues show lower property values indicating a greater likelihood of redevelopment and vulnerability to displacement. There is twice the amount of square feet of low value residential in the 39th Street part of the corridor (6 million square feet) in comparison to the 31st Street/Linwood part of the corridor (3 million square feet). Within the 31st Street/Linwood corridor, 19 percent of residential square footage is low value. Within the 39th Street corridor, 23 percent of residential square footage is low value.

Figure 10: Residential Values in the Middle Area of the Corridor

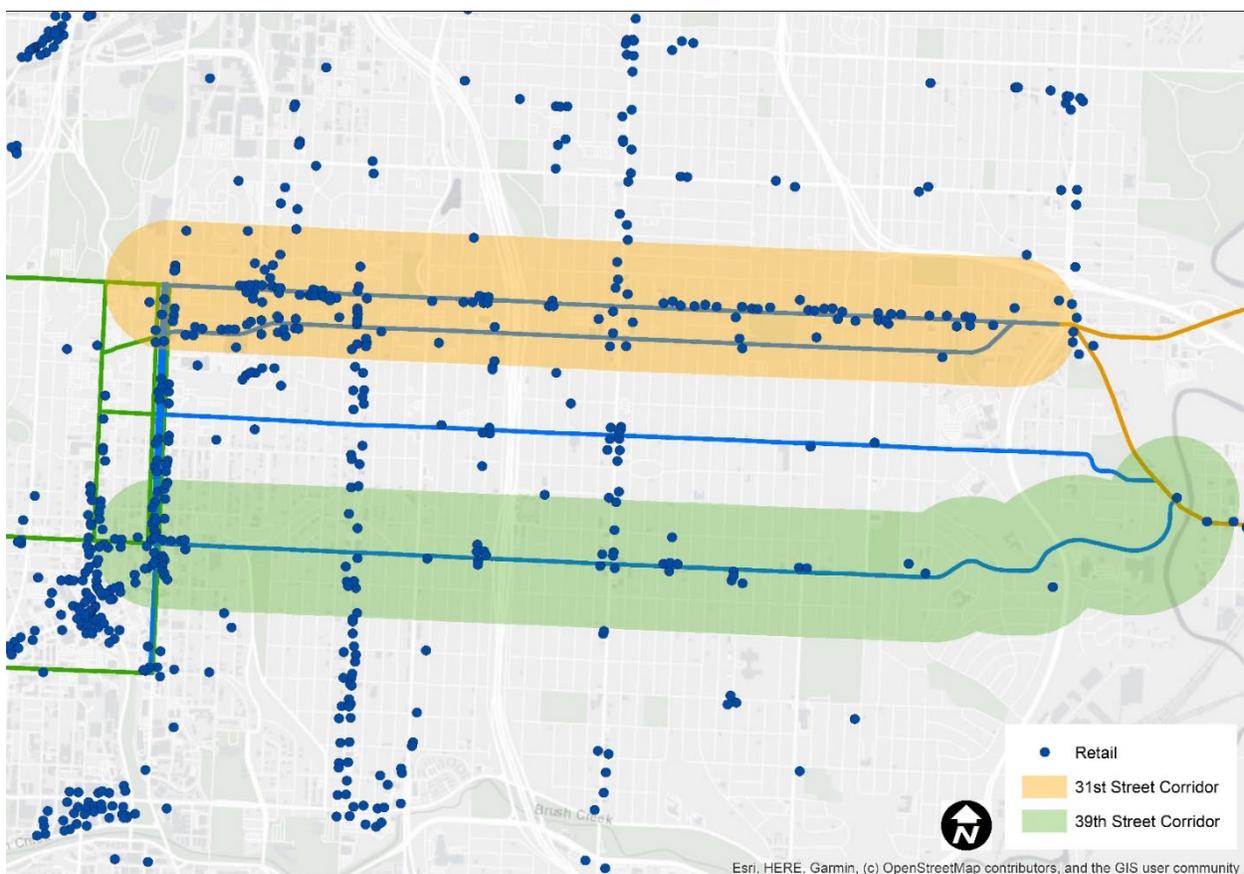


Source: City of Kansas City, Missouri, Assessment Department

The presence of commercial space within these corridors shows that there is more than three times the commercial square footage in the 31st Street/Linwood part of the corridor (1.24 million square feet) compared to the 39th Street part of the corridor (350,000 square feet). An investment in transit along a commercial corridor increases the exposure and economic activity for those businesses and also increases their access to employees by connecting potential employees to employers through transit.

The presence of commercial and civic properties increases neighborhood stabilization by serving as anchors to support community vitality and economic health. Commercial and civic spaces, especially those with a longstanding legacy in the community, are central to a neighborhood's civic and economic life, catering to the needs of local residents and being a locus of community activity. In the event these uses are lost due to redevelopment, there is an increased likelihood that surrounding long-term residents will turn over. The continued presence of commercial and civic space is a crucial part of long-term neighborhood stability.

Figure 11: Commercial Property Locations in the Middle Area of the Corridor



The equity analysis additionally reviewed 30 indicators from the Climate and Economic Justice Screening Tool (CEJST). The CEJST was created in 2020 by the Council of Environmental Quality, a division of the Biden Administration, to show how communities experience burdens related to climate change, health inequity, housing affordability, historic underinvestment, pollution, transportation access, water quality, and workforce development. The CEJST indicators are organized by census tract and are ranked by percentile, flagging tracts that are in the 90th percentile of their particular category nationwide (i.e., in the

top 10 percent of census tracts). The analysis found that areas on the eastern side of Kansas City, MO tend to have much greater economic, environmental, health, and housing burdens than other areas of the city. This analysis informs regional considerations, highlighting equity concerns and the recommendation for targeted investment in the eastern side of the study area. The full equity analysis is included in Attachment C.

The equity analysis further supports moving forward with an alignment along 31st/Linwood.

Tier 2 Alternatives were presented to the Executive Management Team (EMT) for discussion of the three end-to-end alternatives and potential outcomes of each with the added consideration of mode. The following *Figure 12*, *Figure 13* and *Figure 14* are the outcomes for three scenarios that defined alignment and mode. Additional detail on the supporting data is included in Attachment D.

Figure 12: Scenario 1: Streetcar along 39th-31st/Linwood



Scenario 1 is proposed for Streetcar as it offers the greatest case to support the level of investment (i.e. high cost) based on ridership potential. For the Middle segment, the alignment offers greater right-of-way width compared to 39th Street (an additional 10-12 feet on 31st Street and an additional 50 feet on Linwood Blvd), which are better conditions for the level of disruption to businesses and uses that Streetcar construction will require as well as for the possibility of a dedicated lane for transit. This corridor also has greater ridership potential corridor-wide than an alignment along 39th Street in the Middle segment.

The alignment along 31st or Linwood in the Middle portion of the corridor offers less risk of residential displacement compared to 39th Street. A tradeoff of this scenario compared to offering Streetcar along 39th Street in the Middle segment is that there would be a greater risk of commercial displacement along 31st or Linwood. With a Streetcar scenario overall, there will be redevelopment pressure that would need to be considered by the City of Kansas City Missouri and United Government of Kansas City, Kansas and Wyandotte County for land use policies that mitigate displacement.

The East segment of the corridor adds to project costs (due to physical constraints) without additional benefit of potential riders. Potential ridership is a quarter of the ridership potential of the Middle segment over the same mileage and would be difficult to justify in a cost/benefit analysis including for federal funding applications. It was therefore excluded from a Streetcar scenario.

Additional analysis and feedback were needed on Broadway and Main before eliminating either alternative as both were determined feasible from an engineering perspective. With the many shared

characteristics of 31st and Linwood, both were carried forward for additional consideration and for feedback from the public.

Figure 13: BRT along 39th-31st/Linwood-Stadium



Figure 14: BRT along 39th-39th-Stadium



There is substantial population and employment density and ridership potential to support a BRT-level investment. The relative affordability and service flexibility of BRT may support the East segment (in a cost/benefit analysis) to promote private investment, however less frequent trips in the near term on this segment may be an appropriate recommendation. Greater private investment can be incentivized with more robust BRT investment, such as dedicated lanes and signal priority. BRT will not incentivize the same level of private investment as Streetcar; however, it can incentivize some investment if designed at a more robust level for a lower cost compared to a Streetcar.

The alignment of the Middle segment on 31st or Linwood has moderate risk of residential displacement and greater risk of commercial displacement compared to 39th Street. However, the risk is less for both compared to a Streetcar, and the robustness of the BRT design will be a factor in coordinating land use policies that would mitigate displacement with the City of Kansas City Missouri and United Government of Kansas City, Kansas and Wyandotte County.

The alignment on Stadium Drive is recommended over an alignment on US 40 for the improved speed of travel across the corridor and slightly higher level of existing population density and both existing and projected employment density. The alignment, in comparison to US 40, has slightly more transit dependent population based on a measure of zero-car households. The cost is less with less distance to

travel based on a per mile cost assumption. The travel time in the inbound direction is less compared to US 40. The tradeoff compared to US 40 is less right-of-way width by 25-30 feet.

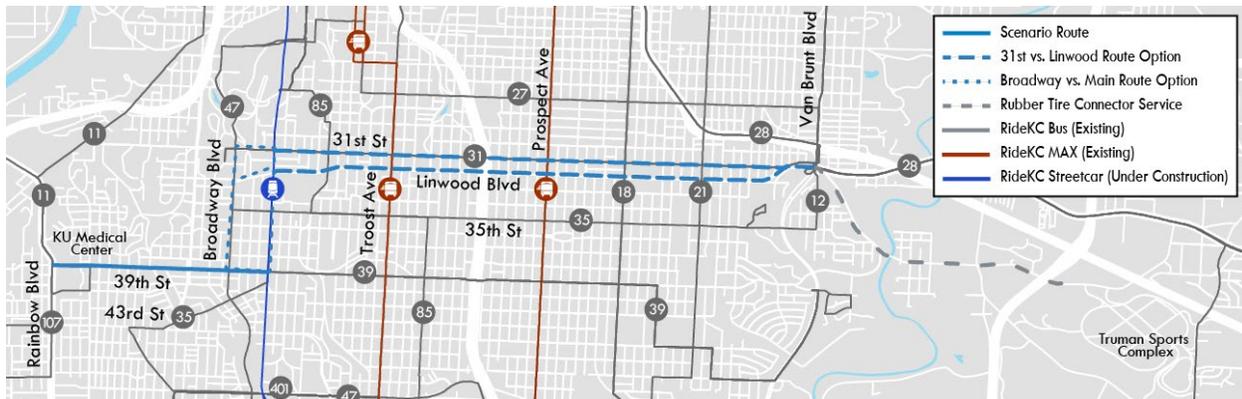
Tier 2 Alternatives

Based on the information above, the project team together with the EMT concluded that two scenarios should be brought to the public for feedback, which included Scenario 1 (Streetcar along 39th-31st/Linwood) and Scenario 2 (BRT along 39th-31st/Linwood-Stadium Drive) shown in *Figure 15* and *Figure 17*. Scenario 3 (BRT along 39th-39th-Stadium Drive) was eliminated due to the constraints along the corridor that create significant impacts with implementation of either mode along the corridor.

The Tier 2 Alternatives were further evaluated for ridership estimates, preliminary costs, and estimated time to complete and are defined by these findings in the next section.

Scenario 1: Streetcar

Figure 15: Scenario 1: Streetcar along 39th-31st/Linwood



Characteristics, Benefits and Considerations

A Streetcar scenario is defined by the following characteristics, benefits, and considerations:

- Supports high ridership potential for a best-case return on investment
- Comes at a high capital cost but offers the greatest economic development benefit and reinvestment potential in the corridor
- Does not support a return on investment east of Van Brunt/Hardesty Avenue due to low ridership potential
- Provides high-quality amenities, high-capacity vehicles, and high frequency service
- Causes significant traffic and corridor disruption during construction
- Needs close coordination with municipalities and the public on supportive land use policies due to development pressure

Streetcar Cost Estimates and Funding Options

The estimated capital cost is \$350-\$600 million and the estimated annual operating cost is \$6 million in 2022 dollars.

Capital Cost Estimate (2022 dollars)	\$450-650 million
Annual Operating Cost Estimate (2022 dollars)	\$6 million

Costs are estimate on a per-mile assumption of \$100 to \$110 million. The range is the difference between using existing track infrastructure on Main Street versus constructing new infrastructure on Broadway. All capital costs represent current year dollars and our subject to inflation and contingency to develop a year of expenditure estimate. Costs are also subject to change as the project advances and detailed engineering is completed.

The potential funding options are shown in *Figure 16*.

Figure 16: Streetcar Potential Funding Options

		Capital Funding Potential	Operating Funding Potential
Local	Existing KCMO Transit Taxes <i>(3/8th Cent Sales Tax or Mass Transportation Sales Tax)</i>		
Local	Transportation Development District (TDD) <i>(Sales tax, special assessment, combination, or other)</i> <i>The Main Street TDD funds about 50% of the project's capital cost + the majority of annual operations. A similar East-West TDD would likely not yield enough revenue to cover costs.</i>	✓	✓
Local	New Transit Funding <i>(City, County, or Regional Funding Initiative)</i>	✓	✓
Local	Private Sector Contribution <i>(Private sector funding is unlikely to fund a substantial portion of either capital or operating project costs)</i>	✓	✓
Federal	Federal Transit Administration Capital Investment Grant (CIG) New Starts Program <i>(Typically 50% of capital cost)</i>	✓	
Federal	Other Federal Grants for Capital Funding <i>(Smaller amounts of the overall project cost)</i>	✓	

At the local level, the existing KCMO Transit Tax is currently a funding option available, however there is no capacity within the source to fund capital debt or operations without substantially reducing existing services. The Transportation Development District is another tool that currently exists along the Main Street Streetcar and could be created by vote for the East West Corridor on both the Kansas and Missouri sides. This revenue source would likely not generate enough revenue to cover project costs and other funding sources would be required. The existing TDD on Main Street generates approximately half of the Main Street extension’s capital cost and the majority of annual operations.

A new transit funding source would be needed to generate sufficient funding for capital and operating costs. Potential sources include sales, property or income taxes collected at a city, county, or multi-county level. These sources generate the scale of revenue required for the cost of the project.

Private sector contributions at the scale of hundreds of thousands of dollars or more are potential funding sources and would need to be combined with other funding sources to reach the total project cost.

Any of these local sources would be needed for operating funds as operating funds are not available at the federal level.

At the federal level, the largest funding source is the Federal Transit Administration Capital Investment Grant (CIG) New Starts Program that typically funds 50 percent of capital costs for projects of this cost. This program is a likely funding source that project partners would need to pursue to guarantee implementation of the project within the estimated timeframe described below.

Other federal grants are also available for this project type; however, they typically fund a smaller percent of the overall project cost for a project cost of this size.

Ridership Estimates

Ridership estimates were developed for each alignment option utilizing the STOPS model that was accepted by FTA for the Main Street Extension. For these estimates the Main Street Extension was included in the No Build scenario and the project scenarios were then added to this network to create the Build scenarios. For each scenario the streetcar option was assumed to operate at 10-minute headways from 6:00 a.m. until 10:00 p.m. and 30-minute frequencies in the off peak. For the scenarios that operate on 31st, Route 31 was assumed to be removed and the portion of the route that operates from 31st and Van Brunt to Blue Rider was added to Route 35. Utilizing Main Street has a ridership potential between 8,500 and 9,000. Utilizing Broadway has a ridership potential of 8,000 to 9,000. The model utilizes existing ridership as a basis and given the proximity of 31st and Linwood, ridership should not be used to distinguish between the two corridors.

Implementation Timeline

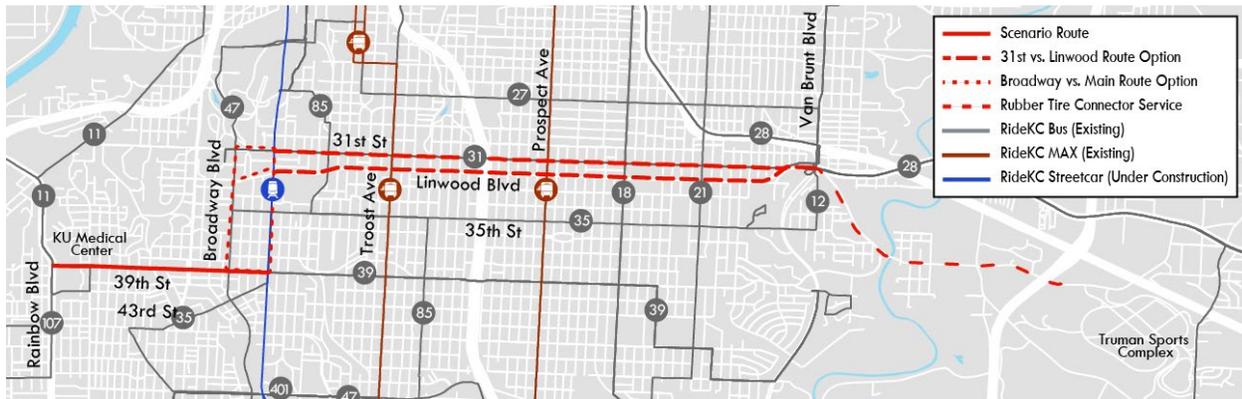
The timeline for a Streetcar project is up to ten years for implementation from the date of this study publication.



The implementation timeline is based on prior Kansas City Streetcar experience but is subject to change as the project progresses. Funding availability will be a major influence on the timeline.

2: MAX BRT

Figure 17: Scenario 2: MAX along 39th-31st/Linwood-Stadium Drive



Characteristics, Benefits and Considerations

A MAX BRT scenario is defined by the following characteristics, benefits and considerations:

- Supports high ridership potential for a return on investment in the study area, but will attract fewer riders in comparison to Streetcar
- Comes at a lower capital cost compared to Streetcar, but offers less impact on economic development and reinvestment potential in the corridor compared to Streetcar
- Does not support a capital investment in stations east of Van Brunt/Hardesty Avenue but would include a one-seat ride service connection to Rock Island Corridor/Truman Sports Complex
- Provides branded, high-amenity stations and vehicles and high frequency service
- Causes only minor traffic and corridor disruption during construction
- Needs close coordination with municipalities and the public on supportive land use policies

Cost Estimates and Funding Options

The estimated capital cost is \$30-\$60 million and the estimated annual operating cost is estimated to be \$4.5 million or an incremental increase of approximately \$1 million in 2022 dollars over the existing service in the corridor.

Capital Cost Estimate (2022 dollars)	\$30-60 million
Annual Operating Cost Estimate (2022 dollars)	\$4.5 million

Costs are estimate on a per-mile assumption of \$5.6 to \$10 million. The range is the difference between different levels of BRT investment in rider amenities at stations, vehicle amenities, dedicated guideway and traffic signaling. The low end is based on the level of investment from Prospect MAX. All capital costs represent current year dollars and our subject to inflation and contingency to develop a year of expenditure estimate. Costs are also subject to change as the project advances and detailed engineering is completed.

The potential funding options are shown in *Figure 18*.

Figure 18: MAX Potential Funding Options

		Capital Funding Potential	Operating Funding Potential
Local	Existing KCMO Transit Taxes <i>(3/8th Cent Sales Tax or Mass Transportation Sales Tax)</i>		✓
Local	New Transit Funding <i>(City, County, or Regional Funding Initiative)</i>	✓	✓
Federal	Federal Transit Administration Capital Investment Grant (CIG) Small Starts Program <i>(Up to 80% of capital cost)</i>	✓	
Federal	Other Federal Grants for Capital Funding <i>(Up to 80% of capital cost)</i>	✓	

At the local level, the existing KCMO Transit Tax is currently a funding option available and there is sufficient capacity within the source to fund operations of a new MAX service.

A new transit funding source would be needed to generate funding for capital and optionally for operating costs. Potential sources include sales, property or income taxes collected at a city, county, or multi-county level.

At the federal level, the largest funding source is the Federal Transit Administration Capital Investment Grant (CIG) Small Starts Program that funds up to 80 percent of capital costs for projects of this cost. Project are eligible for Small Starts funding if the project cost is less than \$400 million and the project is seeking less than \$150 million in CIG funds.

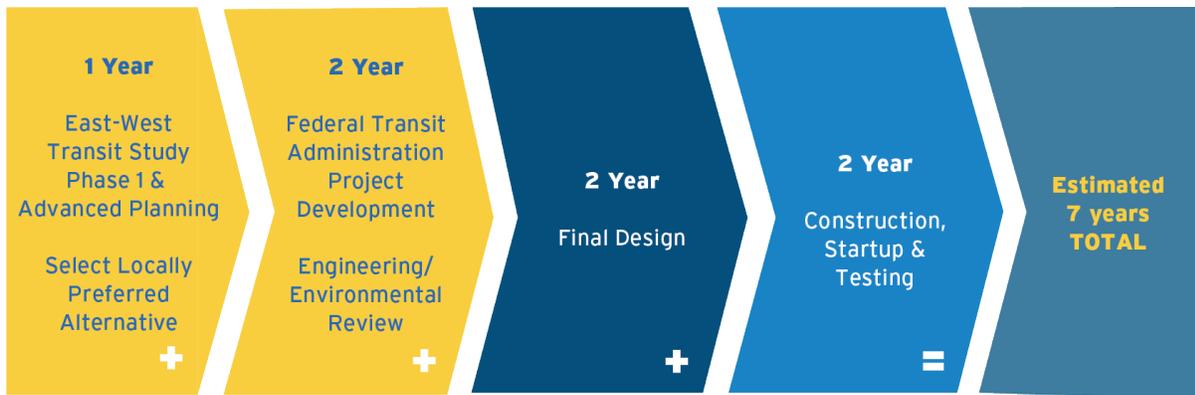
Other federal grants are also available for this project type and can fund up to 80 percent of the overall project cost depending on the final cost estimate and funding cap on the grant program.

Ridership Estimates

Ridership estimates were developed for each alignment option utilizing the STOPS model that was accepted by FTA for the Main Street Extension. For these estimates the Main Street Extension was included in the No Build scenario and the project scenarios were then added to this network to create the Build scenarios. For each scenario the MAX option was assumed to operate at 10-minute headways from 6:00 a.m. until 10:00 p.m. and 30-minute frequencies in the off peak. For the scenarios that operate on 31st, Route 31 was assumed to be removed and the portion of the route that operates from 31st and Van Brunt to Blue Rider was added to the MAX option. Utilizing Main Street has a ridership potential between 3,100 and 4,400. Utilizing Broadway has a ridership potential of 3,000 to 4,600. The model utilizes existing ridership as a basis and given the proximity of 31st and Linwood, ridership should not be used to distinguish between the two corridors.

Implementation Timeline

The timeline for a MAX project is up to seven years for implementation from the date of this study publication.



The implementation timeline is based on prior Kansas City experience but is subject to change as the project progresses. Funding availability will be a major influence on the timeline.

Public Feedback: Second Round of Public Meetings

Public meetings took place in February 2023 to get feedback on the Tier 2 Alternatives. Feedback from the public showed favor toward Scenario 1: Streetcar and for Linwood Blvd as the alignment across the Middle of the corridor. These results are shown in *Figure 19*.

Figure 19: Second Round of Public Meetings Feedback on Scenario and Middle Alignment

	Participants	Scenario 1	Scenario 2	31 st Street	Linwood
Public Meetings	106	39	14	13	34
Online Survey Data	168	84	31	51	64
TOTALS	274	123	45	64	98

Additional detail on the engagement during this round of public feedback is in the attached *RideKC East-West Transit Study Public Engagement Report*.

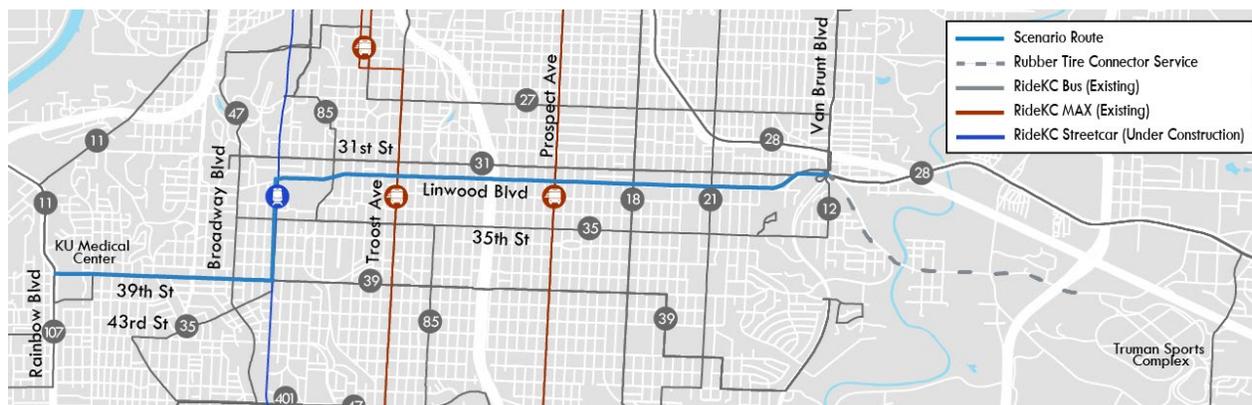
EMT February meeting summary to determine mode to move forward

The EMT met at the conclusion of the second round of public meetings to review the feedback and confirmed support for the Scenario 1: Streetcar as the project to move forward for additional study and implementation.

FINAL RECOMMENDATION SUMMARY

As a result of the Tier 2 public feedback and continued evaluation, the final recommendation is a Streetcar project with the alignment shown in *Figure 12*. From west to east, the alignment will follow 39th Street, Main Street, Linwood Blvd and terminate at Linwood and Van Brunt/Hardesty Avenue.

Figure 20: Final Recommended Streetcar Alignment



The preferred alignment follows the previously screened 39th Street in the West portion of the study area. The alignment along Main Street is preferred due to its connection with the Streetcar extension under construction along Main Street, which offers existing infrastructure and optimal transferring between the Main Street and East-West Streetcar routes. A Streetcar alignment on Broadway would require rider transfers to walk approximately five minutes between Main and Broadway, which is a greater inconvenience. Additionally, interlining two lines with shared track infrastructure offers greater flexibility for Streetcar operations. This is an important option in the near term for non-revenue trips (for maintenance or preparing for revenue trips) and in the long term for offering more route options such as a one-seat ride. For example, a trip made from the west end of 39th Street that continues north on Main Street tracks to the downtown.

The alignment in the Middle portion of the study area along Linwood is preferred due to the greater right of way space available and based on previous studies of transit connections. Linwood was the corridor analyzed as part of the *NextRail Streetcar Expansion Study* for Streetcar extensions in 2013. Benefits identified during this study of Linwood compared to 31st Street include:

- Less walk time to key activity centers including the VA Hospital, Martini Corner, and Costco
- No issues with engineering whereas 31st Street has grade challenges near Main Street and Van Brunt and lane widths are limited to 10 feet.
- The potential for dedicated lanes is high on Linwood and low on 31st Street due to available right of way
- The parking impacts along Linwood would be minor and along 31st Street would be major

Another key consideration of this study was identifying the development between 31st and Linwood. 31st Street has more commercial development between Main Street and Prospect Avenue, whereas Linwood has more residential and institutional uses. The tradeoff may be mitigated by the short distance between the two corridors, making access to commercial uses along 31st Street a less significant impact compared to the benefits of Linwood listed above.

Linwood was also the subject of the *Linwood Corridor Complete Street and Bikeway Plan* (2020) that envisions high-capacity transit on Linwood in conjunction with other pedestrian and bicycle improvements, which are complements to transit for access to transit stations and as first-and-last mile solutions. Linwood was also identified as a future high-capacity transit corridor in the *Heart of the City Area Plan* adopted in 2011.

The terminal location on the west end will be determined in a next study phase. A non-Streetcar connection east of Van Brunt/Hardest Avenue to the Rock Island Corridor/Truman Sports Complex is recommended that does not include a capital investment in stations and offers service frequency-only improvements.

While costs will continue to be refined, there is the additional potential benefit of cost savings with using the Streetcar Main Street extension track compared to construction of new track along Broadway Blvd.

The preferred alignment along Main Street and Linwood will be carried forward into the next phase of study and for implementation. However, if during subsequent study phases it is found that Main Street or Linwood is not preferred due to insurmountable costs and engineering constraints, or if public feedback calls for the rejection of these alignments, the Broadway and 31st Street alignments will be substitutes as the next-preferred alignments supported by this study.