

MEMORANDUM

To: MARC JCCC AA – Stakeholder Advisory Panel (SAP)
From: Consulting Team
Date: April 17, 2012
Subject: Locally Preferred Alternative (LPA) Summary

Introduction

Based on guidance from the Project Partnership Team (PPT) and the initial Tier 2 Analysis, alternatives are moving forward for further evaluation prior to the decision regarding a Locally Preferred Alternative (LPA). Those alternatives, described by corridor are:

Table 1: Remaining Alternatives

Corridor	Mode	Terminus
East (I -70)	Bus	TBD
East (I -70)	DMU	Oak Grove
Southeast (Rock Island)	Bus	TBD
Southeast (Rock Island)	DMU	Pleasant Hill
Southeast (Rock Island)	Enhanced Streetcar	Raytown Central Business District
Southeast (Rock Island)	Bus rapid transit (BRT)	Lee's Summit - Pryor Road

This memo will provide a brief description of each of the alternatives, by corridor, with evaluation data related to service statistics, ridership, travel markets, costs, environmental impacts and equity.



East Corridor (I-70)

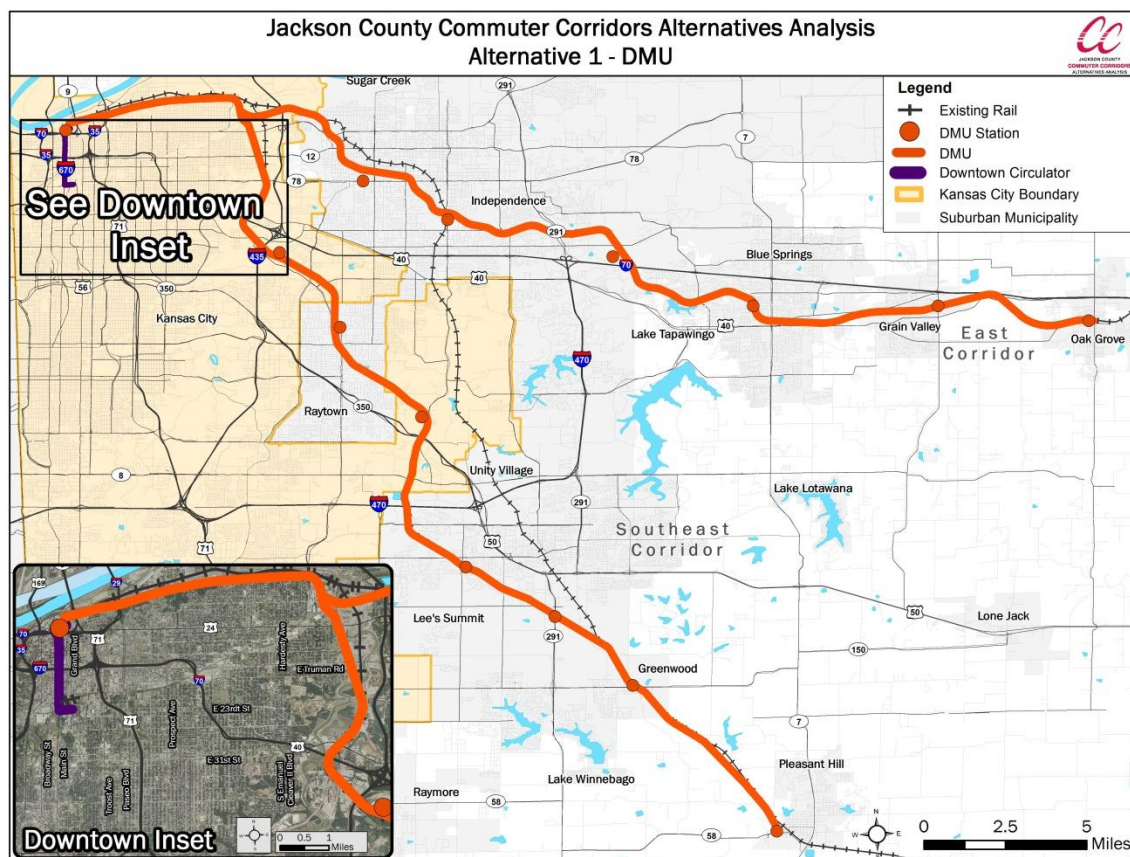
Bus

An express bus or combination of express and local bus is being retained in the east corridor. The terminal points are flexible as is the routing using I-70 or other surface arterials. A bus option offers the ability to offer a one-seat ride to multiple origins and destinations and could augment any fixed-guideway services.

Rail

A full regional rail alternative uses diesel multiple unit (DMU)-style trains to connect suburban jurisdictions in the east corridor along the Kansas City Southern right-of-way to the River Market, to provide access to other destinations and opportunities for reverse commutes to suburban employment centers. A map of the East DMU Alternative (as depicted in all three alternatives) is in Figure 1.

Figure 1: Alternative 1 (DMU in East and Southeast Corridors)



A full description of this alternative can be found on Pages 15 to 18. However, the following table provides an analysis of it.

Table 2: East DMU River Market Alignment Tier 2 Analysis

Measure	Methodology	River Market DMU
Performance Measures		
End-to-End Scheduled Travel Time	<i>In Minutes</i>	35.2
Average Guideway Speed	<i>In MPH</i>	57
Weighted Travel Time - Blue Springs Central Business District to Kansas City Central Business District	<i>In Minutes</i>	51
Weighted Travel Time - Oak Grove to Kansas City Central Business District	<i>In Minutes</i>	61
Transit Ridership	<i>Daily Ridership</i>	1,000 – 3000
Maximum Load Point	<i>Peak # of Passengers During Peak</i>	340
Demographic Measures		
Households Within Half Mile of Stations	<i>GIS Analysis</i>	8,785
Jobs Within Half Mile of Stations	<i>GIS Analysis</i>	30,078
Cost Measures		
Vehicle and Maintenance Facility Cost	<i>Low/High in 2012 \$M</i>	\$92.62/\$135.41
Track and Station Cost	<i>Low/High in 2012 \$M</i>	\$386.98/\$464.54
Annual Operating Cost	<i>In Dollars</i>	\$10,666,640
Total Capital Cost	<i>Low/High in 2012 \$M</i>	\$479.60/\$599.95
Environmental Measures		
Number of Residential Displacements	<i>Full and Partial</i>	0
Number of Non-Residential Displacements	<i>Full and Partial</i>	7
Park Impacts	<i>In Acres</i>	80
Wetland Impacts	<i>In Acres</i>	4.9
Stream Impacts	<i>In Feet</i>	1,241
Floodplain Impacts	<i>In Acres</i>	50.9
Visual Impacts	<i>High/Medium/Low</i>	H
Percentage of Households Within 1/2 Mile of Alignment that are Low Income	<i>GIS Analysis</i>	13.74%
Proportion of Displacements Within Environmental Justice Census Tracts	<i>GIS Analysis</i>	0/0





Purpose and Need Measures		
Economic Development Impact	<i>Model Based</i>	\$503.6M
Level of Support	<i>Qualitative Measure</i>	High
Bike / Pedestrian Integration	<i>Qualitative Measure</i>	Medium

Southeast Corridor (Rock Island)

Bus

An express bus or combination express and local bus is being retained in the southeast corridor. The terminal points are flexible as is the routing using the Rock Island right-of-way and other surface arterials highways and streets in the suburban and urban jurisdictions. A bus option offers the ability to offer a one-seat ride to multiple origins and destinations and could augment any fixed-guideway services.

Rail: DMU Southeast Alignment

A DMU option in the southeast corridor is the only of the three alternatives to join with the East alternative. In this alternative, the DMU in the Southeast Corridor joins with the DMU in the East to form a full region-wide DMU system. All calculations and analysis related to this alternative are based on the assumption that it would only operate if the East line is also in operation along the proposed River Market alignment. A full description of this alternative can be found on Pages 19 to 21. However, the following is the Tier 2 Analysis for the Southeast Alternative 1.

Table 3: Southeast Alternative DMU Tier 2 Analysis

Measure	Methodology	DMU Rock Island
Performance Measures		
End to End Scheduled Travel Time	<i>In Minutes</i>	40
Average Guideway Speed	<i>In MPH</i>	59
Weighted Travel Time - Pryor Road (Lee's Summit) to Kansas City Central Business District	<i>In Minutes</i>	58
Weighted Travel Time - Pleasant Hill to Kansas City Central Business District	<i>In Minutes</i>	65
Weighted Travel Time - Raytown (63 rd St / Raytown Rd) to CBD (3 rd /Grand)	<i>In Minutes</i>	25
Transit Ridership	<i>Daily Ridership</i>	1,000 - 3000
Maximum Load Point	<i>Peak # of Passengers During Peak</i>	130



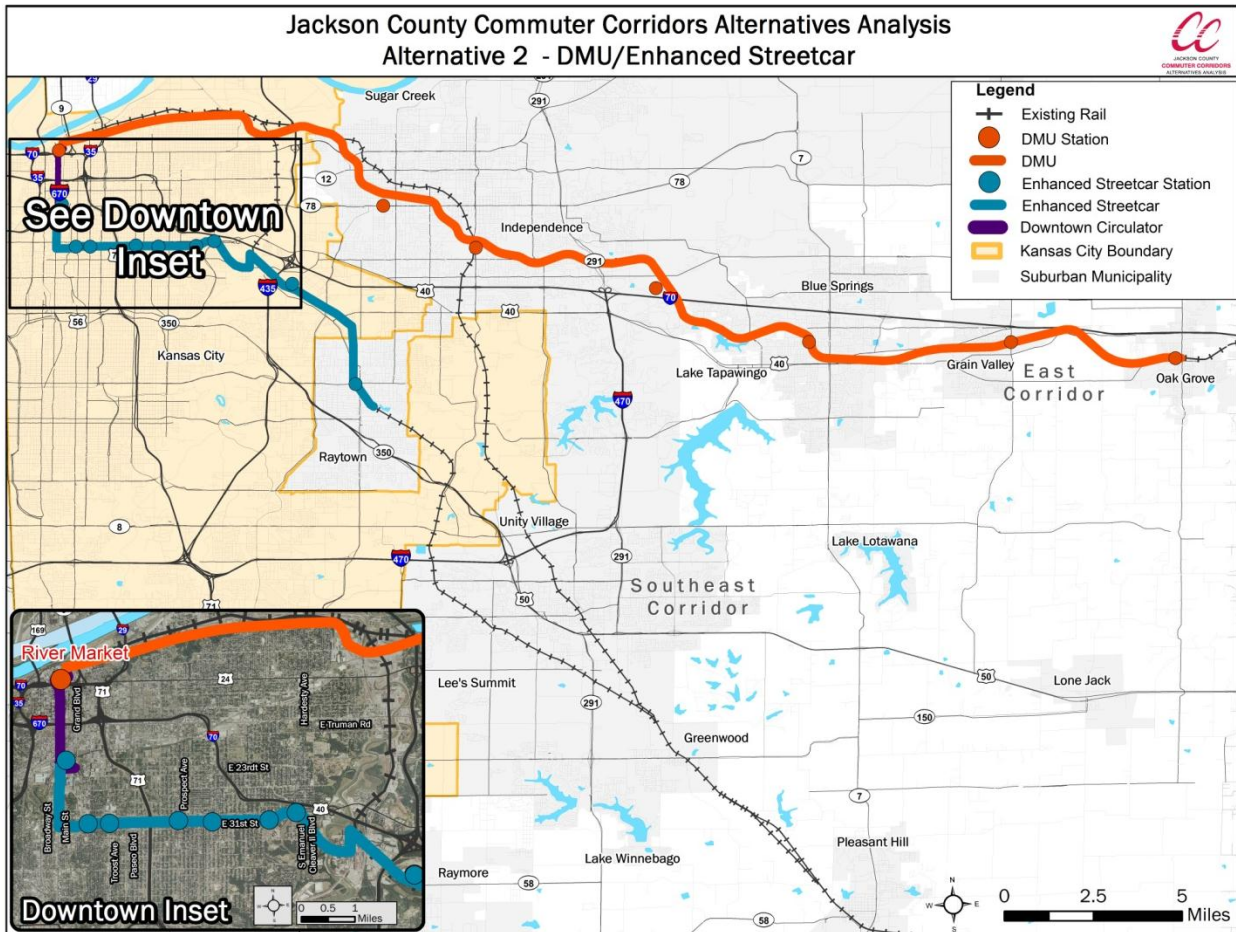
Demographic Measures		
Households Within Half Mile of Stations	GIS Analysis	2,718
Jobs Within Half Mile of Stations	GIS Analysis	4,550
Cost Measures		
Vehicle and Maintenance Facility Cost	Low/High in 2012 \$M	\$63.68/\$93.09
Track and Station Cost	Low/High in 2012 \$M	\$261.81/\$320.45
Total Capital Cost	Low/High in 2012 \$M	\$325.48/\$413.54
Annual Operating Cost	In Dollars	\$9,439,313
Demographics		
Number of Residential Displacements	Full and Partial	0
Number of Non-Residential Displacements	Full and Partial	3
Environmental Measures		
Park Impacts	In Acres	0
Wetland Impacts	In Acres	0
Stream Impacts	In Feet	0
Floodplain Impacts	In Acres	0
Visual Impacts	High/Medium/Low	M
Percentage of Households Within 1/2 Mile of Alignment that are Low Income	GIS Analysis	6.46%
Proportion of Displacements Within Environmental Justice Census Tracts	GIS Analysis	0/0
Purpose and Need Measures		
Economic Development Impact	Model Based	\$312.3M
Level of Support	Qualitative Measure	High
Bike / Pedestrian Integration	Qualitative Measure	Medium



Enhanced Streetcar Southeast Alignment

The Enhanced Streetcar Southeast Alignment *does not* connect with the East DMU alignment and serves a more urban market than the DMU Alternative in the Southeast Corridor because it travels to Downtown Kansas City via Linwood Boulevard.

Figure 2: DMU in East Corridor and Enhanced Streetcar in Southeast



A full description of this alternative can be found on Pages 22 to 23. However, the table on the following page is the Tier 2 Analysis for the Southeast Alternative 2.



Table 4: Southeast Enhanced Streetcar Tier 2 Analysis

Measure	Methodology	Enhanced Streetcar Rock Island
Performance Measures		
End to End Scheduled Travel Time	<i>In Minutes</i>	34
Average Guideway Speed	<i>In MPH</i>	22
Weighted Travel Time - Pryor Road (Lee's Summit) to Kansas City Central Business District	<i>In Minutes</i>	n/a
Weighted Travel Time - Pleasant Hill to Kansas City Central Business District	<i>In Minutes</i>	n/a
Weighted Travel Time - Raytown (63 rd St. / Raytown Rd) to CBD (3 rd and Grand)	<i>In Minutes</i>	50
Transit Ridership	<i>Daily Ridership</i>	1,850
Maximum Load Point	<i>Peak # of Passengers During Peak</i>	390
Demographics		
Households Within Half Mile of Stations	<i>GIS Analysis</i>	9,111
Jobs Within Half Mile of Stations	<i>GIS Analysis</i>	25,197
Cost Measures		
Vehicle and Maintenance Facility Cost	<i>Low/High in 2012 \$M</i>	\$63.72/\$74.84
Track and Station Cost	<i>Low/High in 2012 \$M</i>	\$338.44/\$462.73
Total Capital Cost	<i>Low/High in 2012 \$M</i>	\$452.16/\$537.58
Annual Operating Cost	<i>In Dollars</i>	\$6,108,464
Environmental Measures		
Number of Residential Displacements	<i>Full and Partial</i>	3
Number of Non-Residential Displacements	<i>Full and Partial</i>	6
Park Impacts	<i>In Acres</i>	0
Wetland Impacts	<i>In Acres</i>	1.8
Stream Impacts	<i>In Feet</i>	1,830
Floodplain Impacts	<i>In Acres</i>	23.2
Visual Impacts	<i>High/Medium/Low</i>	M
Percentage of Households Within 1/2 Mile of Alignment that are Low Income	<i>GIS Analysis</i>	13.72%
Proportion of Displacements Within Environmental Justice Census Tracts	<i>GIS Analysis</i>	3/3



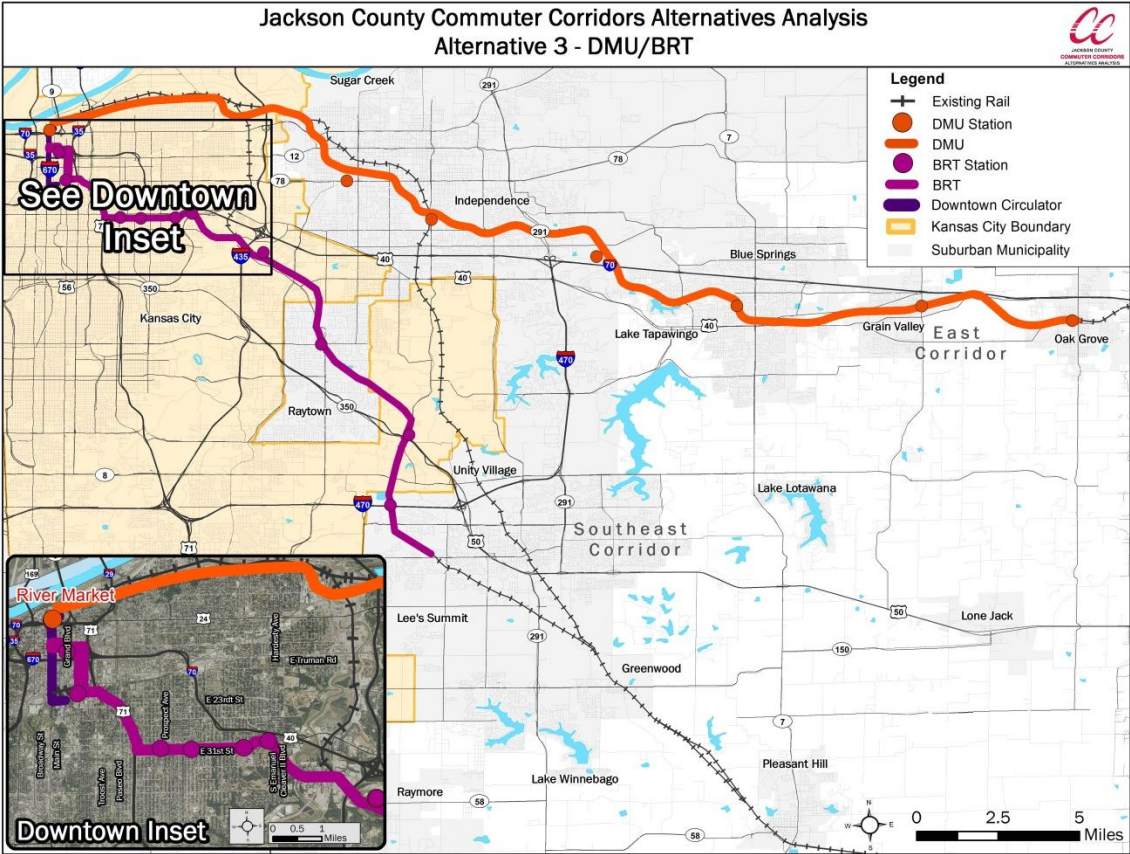


Purpose and Need Measures		
Economic Development Impact	Model Based	\$660.4M
Level of Support	Qualitative Measure	High
Bike / Pedestrian Integration	Qualitative Measure	Medium

Bus Rapid Transit Southeast Alignment

As with the other alternatives in the Southeast corridor, the bus rapid transit component in the southeast *does not* connect with the East Alternative. It instead serves a more urban market along Linwood Boulevard on its way to downtown.

Figure 3: DMU in East Corridor and Bus Rapid Transit in Southeast



A full description of this alternative can be found on Pages 24 to 25. However, the table below is the Tier 2 Analysis for the Southeast Alternative 3.



Table 5: Southeast Alternative Bus Rapid Transit Tier 2 Analysis

Measure	Methodology	Bus Rapid Transit Rock Island
Performance Measure		
End to End Scheduled Travel Time	<i>In Minutes</i>	33
Average Guideway Speed	<i>In MPH</i>	36
Weighted Travel Time - Pryor Road (Lee's Summit) to Kansas City Central Business District	<i>In Minutes</i>	56
Weighted Travel Time - Pleasant Hill to Kansas City Central Business District	<i>In Minutes</i>	n/a
Weighted Travel Time - Raytown (63 rd St. / Raytown Rd) to CBD (3 rd and Grand)	<i>In Minutes</i>	54
Transit Ridership	<i>Daily Ridership</i>	500
Maximum Load Point	<i>Peak # of Passengers During Peak</i>	160
Demographics		
Households Within Half Mile of Stations	<i>GIS Analysis</i>	7,292
Jobs Within Half Mile of Stations	<i>GIS Analysis</i>	59,056
Cost Measures		
Vehicle and Maintenance Facility Cost	<i>Low/High in 2012 \$M</i>	\$5.57/\$6.53
Track and Station Cost	<i>Low/High in 2012 \$M</i>	\$223.62/\$276.67
Total Capital Cost	<i>Low/High in 2012 \$M</i>	\$229.19/\$283.20
Annual Operating Cost	<i>Annual Costs per Line</i>	\$3,171,130
Environmental Measures		
Number of Residential Displacements	<i>Full and Partial</i>	0
Number of Non-Residential Displacements	<i>Full and Partial</i>	0
Park Impacts	<i>In Acres</i>	0
Wetland Impacts	<i>In Acres</i>	2.3
Stream Impacts	<i>In Feet</i>	4,039
Floodplain Impacts	<i>In Acres</i>	23.4
Visual Impacts	<i>High/Medium/Low</i>	L
Percentage of Households Within 1/2 Mile of Alignment that are Low Income	<i>GIS Analysis</i>	13.12%
Proportion of Displacements Within Environmental Justice Census Tracts	<i>GIS Analysis</i>	0/0





Purpose and Need Measures		
Economic Development Impact	<i>Model Based</i>	TBD
Level of Support	<i>Qualitative Measure</i>	High for Rail – Low for BRT
Bike / Pedestrian Integration	<i>Qualitative Measure</i>	Medium



Summary

The next two tables (Tables 6 and 7) present summary information for the alternatives under consideration in the East and the Southeast, including a low cost/transportation systems management (TSM) bus improvement for each corridor.

Table 6: Summary of East Alternatives 1-3 Tier 2 Analysis with Bus Option

Measure	Methodology	Bus	River Market DMU
Performance Measures			
End to End Scheduled Travel Time	<i>In Minutes</i>		35.2
Average Guideway Speed	<i>In MPH</i>	35 to 51	57
Weighted Travel Time - Blue Springs Central Business District to Kansas City Central Business District	<i>In Minutes</i>	57	51
Weighted Travel Time - Oak Grove to Kansas City Central Business District	<i>In Minutes</i>	59	61
Transit Ridership	<i>Daily Ridership</i>	600	1,150 - 2,800
Maximum Load Point	<i>Peak # of Passengers During Peak</i>		340
Demographic Measures			
Households Within Half Mile of Stations	<i>GIS Analysis</i>		8,785
Jobs Within Half Mile of Stations	<i>GIS Analysis</i>		30,078
Cost Measures			
Capital Cost	<i>Low/High in 2012 \$M</i>		\$479.60/\$599.95
Vehicle and Maintenance Facility Cost	<i>Low/High in 2012 \$M</i>		\$92.62/\$135.41
Track and Station Cost	<i>Low/High in 2012 \$M</i>		\$386.98/\$464.54
Annual Operating Cost	<i>In Dollars</i>		\$10,666,640
Environmental Measures			
Number of Residential Displacements	<i>Full and Partial</i>	0	0
Number of Non-Residential Displacements	<i>Full and Partial</i>	0	7
Park Impacts	<i>In Acres</i>	0	55
Wetland Impacts	<i>In Acres</i>	0	43.3
Stream Impacts	<i>In Feet</i>	0	24,021



Floodplain Impacts	<i>In Acres</i>	0	179.8
Visual Impacts	<i>High/Medium/Low</i>	L	H
Percentage of Households Within 1/2 Mile of Alignment that are Low Income	<i>GIS Analysis</i>		13.74%
Proportion of Displacements Within Environmental Justice Census Tracts	<i>GIS Analysis</i>		0/0
Purpose and Need Measures			
Economic Development	<i>Model Based Spinoffs</i>	Low	\$503.6M
Level of Support	<i>Qualitative Measure</i>	Low	High
Bike / Pedestrian Integration	<i>Qualitative Measure</i>	Medium	Medium



Table 7: Summary of Southeast Alternatives 1-3 Tier 2 Analysis with Bus Option

Measure	Methodology	Bus	DMU Rock Island	Enhanced Streetcar Rock Island	Bus Rapid Transit Rock Island
Performance Measures					
End to End Scheduled Travel Time	<i>In Minutes</i>		40	34	32
Average Guideway Speed	<i>In MPH</i>	35 to 37	59	22	36
Weighted Travel Time - Pryor Road (Lee's Summit) to Kansas City Central Business District	<i>In Minutes</i>	60	58	n/a	56
Weighted Travel Time - Pleasant Hill to Kansas City Central Business District	<i>In Minutes</i>	60	65	n/a	n/a
Weighted Travel Time - Raytown (63 rd St. / Raytown Rd) to CBD (3 rd and Grand)	<i>In Minutes</i>	48	25	50	54
Transit Ridership	<i>Daily Ridership</i>	350	500	1,850 - 2,700	500
Maximum Load Point	<i>Peak # of Passengers During Peak</i>		130	390	160
Demographic Measures					
Households Within Half Mile of Stations	<i>GIS Analysis</i>		2,718	9,111	7,292
Jobs Within Half Mile of Stations	<i>GIS Analysis</i>		4,550	25,197	59,056
Cost Measures					
Capital Cost	<i>Low/High in 2012 \$M</i>		\$325.48/ \$413.54	\$452.16/ \$537.58	\$229.19/ \$283.20
Vehicle and Maintenance Facility Cost	<i>Low/High in 2012 \$M</i>		\$63.68/ \$93.09	\$63.72/ \$74.84	\$5.57/ \$6.53
Track and Station Cost	<i>Low/High in 2012 \$M</i>		\$261.81/ \$320.45	\$338.44/ \$462.73	\$223.62/ \$276.67
Annual Operating Cost	<i>In Dollars</i>		\$9,439,313	\$6,108,464	\$3,171,130
Environmental Measures					
Number of Residential Displacements	<i>Full and Partial</i>	0	0	3	0



Measure	Methodology	Bus	DMU Rock Island	Enhanced Streetcar Rock Island	Bus Rapid Transit Rock Island
Number of Non-Residential Displacements	<i>Full and Partial</i>	0	0	6	0
Park Impacts	<i>In Acres</i>	0	0	0	0
Wetland Impacts	<i>In Acres</i>	0	8	3.2	0.8
Stream Impacts	<i>In Feet</i>	0	34,308	6,027	6,532
Floodplain Impacts	<i>In Acres</i>	0	156.5	92	91.5
Visual Impacts	<i>High/Medium/Low</i>	L	M	M	L
Percentage of Households Within 1/2 Mile of Alignment that are Low Income	<i>GIS Analysis</i>		6.46%	13.72%	13.12%
Proportion of Displacements Within Environmental Justice Census Tracts	<i>GIS Analysis</i>		0/0	3/3	0/0
Purpose and Need Measures					
Economic Development	<i>Model Based Spinoffs</i>	TBD	\$312.3M	\$660.4M	TBD
Level of Support	<i>Qualitative Measure</i>	Low	High	High	Low
Bike / Pedestrian Integration	<i>Qualitative Measure</i>	Low	Med	Med	Med



Alternative 1 (DMU in East and Southeast Corridors)


The East Line begins at Oak Grove in Jackson County and runs on the Kansas City Southern (KCS) railroad to the River Market. The KCS operates four to six trains daily on this single-track route. The regional rail service will begin just west of Main Street in Oak Grove with a station. There is one at-grade crossing at Clinton Street in Oak Grove. The alignment passes through downtown Oak Grove, runs past residential property and mostly agricultural/undeveloped property to Grain Valley. The route continues west to an at-grade crossing with Robinson Road and Stillhouse Road at the western edge of Oak Grove. There is an existing roadway overpass of Old U.S. 40 between Oak Grove and Grain Valley that will remain.

The route then continues west through Grain Valley's downtown toward the Grain Valley airport. The Grain Valley station will be located in the downtown, east of Main Street. There are at-grade crossings with Main Street, E Kirby Road, and Sni-A-Bar Drive. Between Grain Valley and Blue Springs, the route passes through undeveloped property to a railroad overpass at Adams Dairy Parkway.

As the route travels through Blue Springs, the alignment curves to the north, through downtown Blue Springs passing commercial and residential land uses before continuing west toward Lake Tapawingo and Independence. The Blue Springs station will be located in the downtown where the railroad crosses Main Street. In addition to the grade separation at Adams Dairy Parkway, there are four grade separations in Blue Springs (U.S. 40, Route 7, Walnut Street, and 15th Street) and three at-grade crossings (SW 10th Street, Main Street and Valley View Road).

The alignment turns north and proceeds under I-70 adjacent to undeveloped property as it enters Independence. The Independence Center station will be located south of 39th Street and east of Little Blue Parkway. This area is currently undeveloped but is directly adjacent to major commercial, hospital and expanding residential development. As the alignment continues north and then west, there is an at-grade crossing at 39th Street and roadway overpasses at Little Blue Parkway, Jackson Drive and Route 291. The alignment then continues through established residential development, adjacent to a library and golf course before reaching more commercial development near Noland Road. In this segment there is an at-grade crossing at Crackerneck Road and Kiger Road and a roadway overpass at Lee's Summit Road. The railroad passes underneath Noland Road and the Union Pacific Railroad; a station will be located east of the rail underpass. The alignment then turns north through established residential areas with an at-grade crossing at McCoy Street. There are rail overpasses at 23rd Street and Chrysler Avenue. An existing stub end track that previously served the Independence Depot resides to the north of the KCS main line roughly between





Crysler and Sterling Avenues. There is an at-grade crossing at Scott Avenue. The Independence West station will be located at Sterling Avenue.

The alignment continues west on the KCS where the railroad passes over Sterling Avenue. There is an at-grade crossing at Northern Boulevard and the rail passes over 18th Street. As the alignment turns north, the railroad passes under Winner Road and continues to then travel under Truman Road. The route then travels over U.S. 24/Independence Avenue. There is an at-grade crossing with 7th Street followed by a rail over pass at Wilson Road. The KCS then begins running parallel to the Union Pacific Sedalia subdivision with an at-grade crossing at Kentucky Avenue.

This section of railroad is commonly referred to as Rock Creek Junction. It is the intersection of the KCS, Union Pacific (UP) and Burlington Northern Santa Fe (BNSF) Railway. The KCS and UP are running at-grade and the BNSF is elevated on the Sheffield Flyover. Just south of the Sheffield Flyover, new track on existing KCS/Kansas City Terminal (KCT) right-of-way will be constructed for the Regional Rail alignment. The track will travel under an existing opening of the Sheffield Flyover and turn west traveling between the KCT Blue Valley Yard and the Sheffield Flyover. The alignment will be elevated to cross over the KCS Pittsburgh subdivision, the Blue River, the UP Coffeyville Subdivision, KCS industry tracks and KCT industry tracks. At this point, for Alternative 1, the East Line joins with the Southeast Line to transition into the Common segment of the Regional Rail alignment to the River Market.

The East Line is a single track on the KCS and new build segment with passing tracks at stations. Through agreement with the KCS, the existing freight rail segment will be upgraded to a Class 5 railroad, as described by the Federal Railroad Administration. All highway rail at-grade crossings on the KCS and new build segments will be modified with supplemental safety measures. Four-quadrant gates or medians will create quiet zones by FRA regulation. A quiet zone is a segment of rail line where the locomotive/train horn is not routinely sounded at public highway-rail at-grade crossings.

The common double-track line begins north of St. John Avenue and east of Manchester Trafficway, where it will run as exclusive regional rail service. As the alignment turns west, it crosses at-grade with Manchester Trafficway. The alignment continues along inactive railroad right-of-way at the base of the bluff. As the alignment comes closer to the UP Neff Yard, it leaves the railroad right-of-way and moves on to City of Kansas City, Missouri property. The double track alignment will generally be located south of the UP Neff Yard access road at the base of Kessler Park. The exact alignment has yet to be determined, however. The alignment will pass under Chestnut Avenue, I-29/I-35, and NE Industrial



Trafficway/3rd Street. Just east of the I-29/I-35 highway overpass, the alignment moves back onto inactive railroad right-of-way.

As the alignment passes under NE Industrial Trafficway/3rd Street it turns slightly to begin entering the River Market district. At this location the alignment will travel through private property before returning to City of Kansas City, Missouri right-of-way along the former 2nd Street. The alignment crosses Holmes Street at grade and passes under Missouri Route 9 (the Heart of America Bridge) before it reaches the terminal station at Grand Boulevard and 2nd Street.

All highway-rail at-grade crossings on this segment will be modified with supplemental safety measures. Four-quadrant gates or medians will create quiet zones by FRA regulation. Initial concepts for typical sections are below.

**Figure 4: Regional Rail Typical Section on Common Segment (East of Chestnut Avenue)
Kessler Park Existing Conditions**

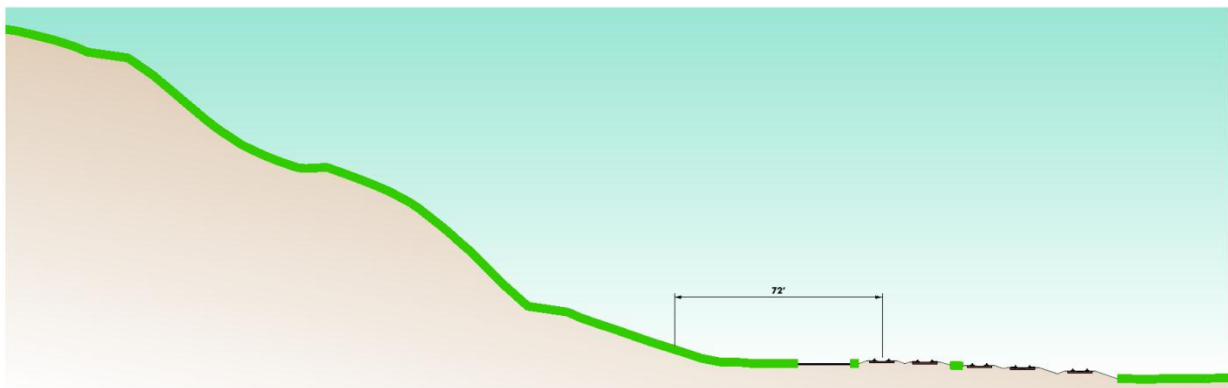




Figure 5: Regional Rail Typical Section on Common Segment (East of Chestnut Avenue)
Kessler Park Proposed Excavation



Figure 6: Regional Rail Typical Section on Common Segment – 2nd and Holmes Proposed Conditions



Southeast Corridor

Alternative 1: DMU Southeast Alignment

The Southeast Line begins at Pleasant Hill in Cass County and runs on the inactive Rock Island Railroad to the Truman Sports Complex as an exclusive regional rail service. The Rock Island Railroad is owned by the Union Pacific and was taken out of service in 1982. The route is a single track with right-of-way ranging from 80 to 300 feet.

The regional rail alternative begins just north of Commercial Street near the Cass County Fairgrounds in Pleasant Hill. There would be a station in this location serving the surrounding residential development. As the route continues north, it travels through undeveloped land and runs parallel to the Union Pacific Sedalia subdivision, an active freight rail line. There is an at-grade crossing at 175th Street and two to three private/farm crossings.

As the route enters Greenwood, there is a roadway overpass at Main Street. There will be a station north of Main Street in Greenwood. There is an at-grade crossing at Ranson Road. The route continues to run parallel to the Union Pacific Sedalia subdivision through undeveloped land toward Lee's Summit.

Near the at-grade crossing at Hamblen Road, the alignment departs from the Union Pacific Sedalia subdivision to travel northwest toward Lee's Summit. A station would be located between Hamblen Road and the roadway overpass at Route 291. The area east of Route 291 is largely undeveloped with some scattered, light industrial development. West of Route 291 the route travels through commercial and industrial uses before reaching established residential development. There are at-grade crossings at Scherer Road, Ward Road and Longview Road. There would be an at-grade crossing on the access road to Charles David Hartman Memorial Park, just east of the Pryor Road overpass. This would also be a station location. The alignment continues to travel to the northwest through established residential development. There are two railway overpasses at 3rd Street and Chipman Road.


The route then passes under I-470 as it travels through undeveloped areas entering into Kansas City. There is an at-grade crossing at Vale Road, an existing 480-foot tunnel at Bannister Road and an at-grade crossing at Brickyard Road before the alignment reaches the Knobtown area.

The rail alternative passes over Route 350 before reaching the Knobtown station in the northwest corner of Route 350 and Noland Road. There is limited commercial and light industrial development in this area. The route continues north through undeveloped land before entering Raytown. There is an at-grade crossing at Frost Road. At 75th Street the roadway will be realigned and the existing rail bridge improved to accommodate the necessary traffic capacity. In this area there is more established residential development as the route travels over the at-grade crossings at Irwin Road and Woodson Road.

The route through Raytown is mostly through established residential areas. There is a railroad overpass at 67th Street and roadway overpasses at Raytown Road and 63rd Street. The Raytown station will be located just north of 63rd Street in downtown Raytown. The alignment continues north to a new railroad overpass 59th Street which replaces a rail bridge removed when the roadway was widened. There are two more at-grade crossing in Raytown at 56th Street and 53rd Street.

As the route continues back into Kansas City, it travels through light industrial and undeveloped land. There are rail overpasses at 47th Street and Blue Ridge Cutoff. The route





then travels just south of the Truman Sports Complex. There is a rail overpass of Sportsman Drive (stadium parking access on the east) and a roadway overpass at Lancer Lane (stadium parking access on the west). Between these two grade separations will be the Truman Sports Complex station to serve events and act as a multi-modal terminal.

The route then continues west, passing under I-435 and into the Leeds/KCS Industrial area. There is an existing rail overpass at Stadium Drive and Manchester Trafficway. The rail continues over the Union Pacific before turning north to travel under I-70 and U.S. 40. Once the alignment has cleared the U.S. 40 overpass a second track will be added to produce a double track section which will continue into the Common Line. Approximately one-half mile north of U.S. 40 the Rock Island right-of-way ends and the route will continue adjacent to and on the Kansas City Terminal right-of-way. At this point the alignment will consist of a double track for the remainder of the Southeast Line before it joins to the common segment except for the Blue River Crossing which will remain single track. The existing KCT track will be upgraded and a new, adjacent track will be built.

Starting at the terminus of the Rock Island, the alignment will continue under the 23rd Street overpass and over the Blue River on the existing single-track KCT bridge. There is an at-grade crossing at 17th Street and the railroad will pass under Truman Road. Continuing north, there is an at-grade crossing at 12th Street and the railroad will pass under U.S. 24/Independence Avenue. There are two at-grade crossings north of Independence Avenue at Roberts Street and Winner Road. These crossings are currently gated with locks to only allow access to authorized vehicles.

At Winner Road the alignment will enter a new build section of trench. The trench will be constructed to travel under the Sheffield Flyover High Lines and Low Lines. The trench will reach grade at St. John Avenue, leaving this as an at-grade crossing. North of St. John Avenue the Southeast Line joins with the East Line to transition into the Common segment of the Regional Rail alignment to the River Market.

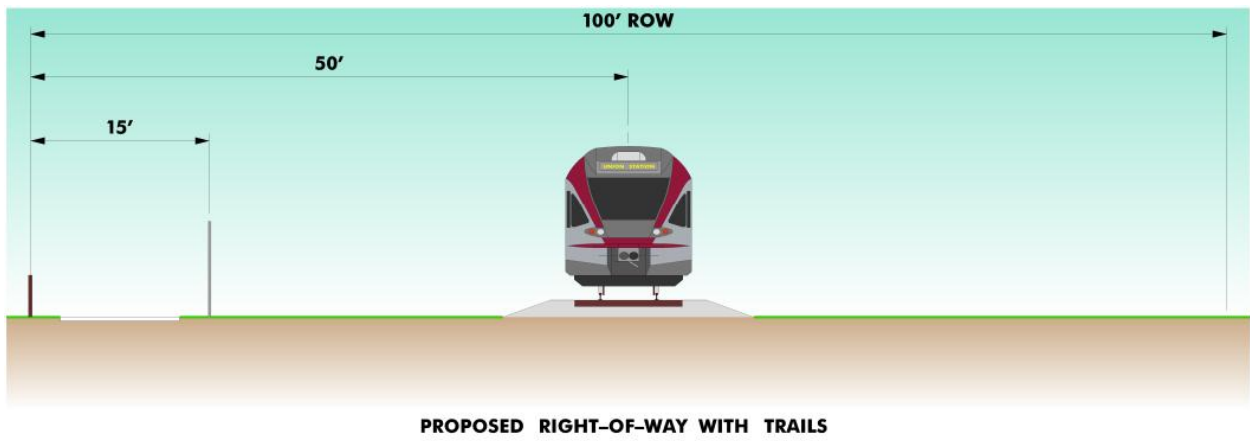
An extension of the Katy Trail pedestrian and bicycle recreational trail is planned adjacent to this segment of Regional Rail. The rails with trails concept will provide adequate separation between the Regional Rail alignment and the trail with appropriate fencing to direct pedestrians and bicyclists away from the rail. Further study needs to take place to determine the exact placement of the trail along the length of the corridor.

The Southeast Line is a single track on the Rock Island with passing tracks at stations. Much of the former rail is intact along the corridor; however, the track on Rock Island is planned to be rehabilitated to meet current passenger rail standards. The segment north of the Rock Island along KCT right-of-way will upgrade the existing track and build a new, adjacent track allowing for double track operation. All highway-rail at-grade crossings on the Rock Island and new build segments will be modified with supplemental safety measures. Four-quadrant gates or medians will create quiet zones by FRA regulation.

At this time the segment of the Rock Island right-of-way from Hamblen Road in Lee's Summit south to Pleasant Hill is not available for purchase from the Union Pacific Railroad. This segment is included in this alternative but it is understood that initial service may only extend to the Lee's Summit station at Route 291.



Figure 7: Regional Rail Typical Section Rock Island Railroad

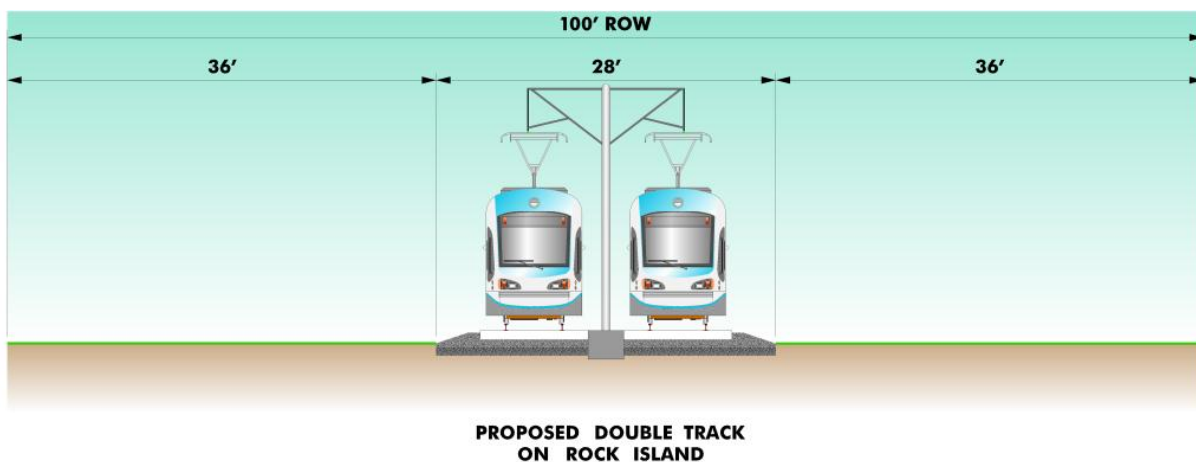


Alternative 2: Enhanced Streetcar Southeast Alignment

The easternmost point of the Enhanced Streetcar Route will be in Downtown Raytown at 63rd Street and the Rock Island right-of-way. The alignment continues north to a new railroad overpass 59th Street which replaces a rail bridge removed when the roadway was widened. There are two more at-grade crossing in Raytown at 56th Street and 53rd Street.

As the route continues into Kansas City, it travels through light industrial and undeveloped land. There are rail overpasses at 47th Street and Blue Ridge Cutoff. The route then travels just south of the Truman Sports Complex. There is a rail overpass of Sportsman Drive (stadium parking access on the east) and a roadway overpass at Lancer Lane (stadium parking access on the west). Between these two grade separations will be the Truman Sports Complex station to serve events and act as a multi-modal terminal.

Figure 8: Enhanced Streetcar Rock Island Railroad



The enhanced streetcar route would operate generally along the Rock Island right-of-way to Stadium Drive, along Stadium Drive to Van Brunt, along 31st Street to Linwood, along Linwood to Main Street, then along Main Street to Pershing Road where it would connect with the downtown streetcar line.

The enhanced streetcar service would operate along a double track configuration from the stadium complex station. From there the route would proceed west operating along the Rock Island right-of-way to Stadium Drive. The route would then transition from the Rock Island right-of-way to Stadium Drive in the Leeds Industrial District via a newly constructed elevated structure that would provide a grade separated crossing over existing and active rail lines that cross Stadium Drive at-grade in the Leeds Industrial District.

Once across these existing rail lines the enhanced streetcar line would return to street level operating in the center of Stadium Drive in a separated guideway. The route would proceed west and north along Stadium Drive through the Leeds Industrial District crossing an existing bridge structure over the Little Blue River that may require modification, to Van Brunt where it will transition to 31st Street and serve a walk access station.

The route would proceed west on 31st Street in a double track, center running guideway configuration for approximately one-quarter mile where it would then transition to Linwood Boulevard and operate in the same configuration west on Linwood Boulevard serving a walk access station adjacent to the Veterans Administration Hospital followed by a station in an urban residential environment at Linwood Boulevard and Indiana and stations in moderate intensity commercial environments at Linwood and Prospect Avenue, Linwood and Troost Avenue, and Linwood and Gillham Road.



Figure 9: Enhanced Streetcar Linwood Blvd Typical Section, Existing Conditions

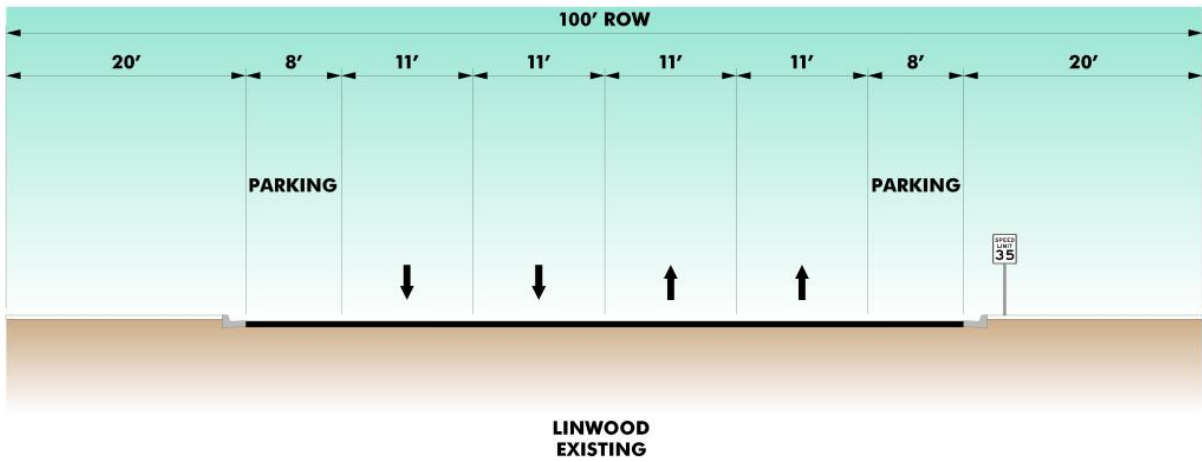
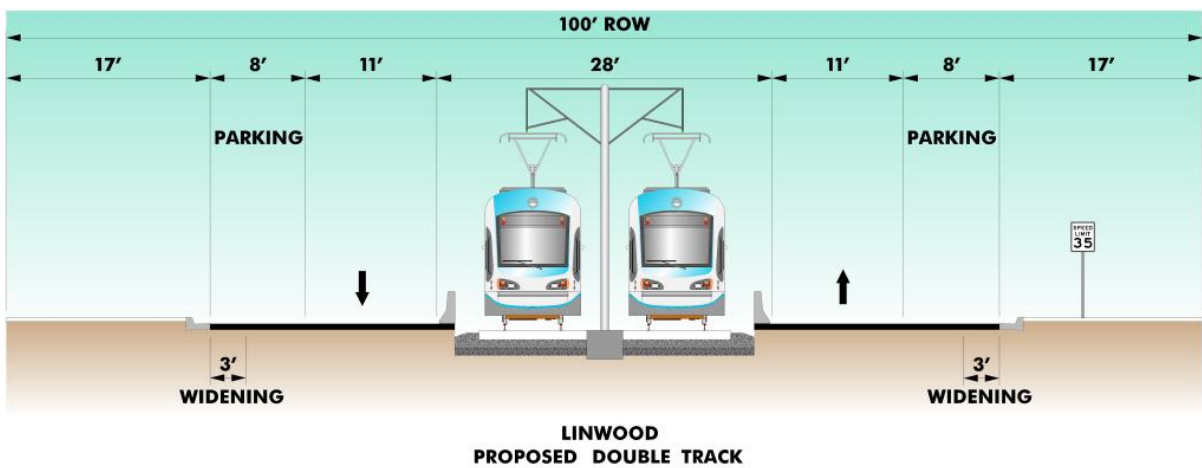


Figure 10: Enhanced Streetcar Linwood Blvd Typical Section



From Gillham Road the route would proceed west to Main Street, where it would transition to Main heading northbound and operate in the same double track, center running guideway configuration. The route would serve stations at Main Street and 31st Street, and adjacent to the Federal Reserve office between 27th and 28th Streets along Main Street. The route would terminate on Main Street adjacent to Union Station, where it would connect with the downtown circulator streetcar line.



Alternative 3: Bus Rapid Transit Southeast Alignment

The initial station for the southeast alignment BRT is adjacent to Pryor Road and the Rock Island right-of-way in Lee's Summit. The alignment continues to travel to the northwest through established residential development. There are two roadway overpasses at 3rd Street and Chipman Road. The route then passes under I-470 as it travels through undeveloped areas entering into Kansas City. There is an at-grade crossing at Vale Road, an existing 480-foot tunnel at Bannister Road and an at-grade crossing at Brickyard Road before the alignment reaches the Knobtown area.

The route passes over Route 350 before reaching the Knobtown station in the northwest corner of Route 350 and Noland Road. There is limited commercial and light industrial development in this area. The route continues north through undeveloped land before entering Raytown. There is an at-grade crossing at Frost Road. At 75th Street the roadway will be realigned and the existing rail bridge improved to accommodate the necessary traffic capacity. In this area there is more established residential development as the route travels over the at-grade crossings at Irwin Road and Woodson Road.

The route through Raytown is mostly through established residential areas. There is a railroad overpass at 67th Street and roadway overpasses at Raytown Road and 63rd Street. The Raytown station will be located just north of 63rd Street in downtown Raytown. The alignment continues north to a new busway overpass at 59th Street which replaces a rail bridge removed when the roadway was widened. There are two more at-grade crossing in Raytown at 56th Street and 53rd Street.

As the route continues back into Kansas City, it travels through light industrial and undeveloped land. There are overpasses at 47th Street and Blue Ridge Cutoff. The route then travels just south of the Truman Sports Complex. There is an overpass of Sportsman Drive (stadium parking access on the east) and a roadway overpass at Lancer Lane (stadium parking access on the west). Between these two grade separations will be the Truman Sports Complex station to serve events and act as a multi-modal terminal.

Example cross sections for various parts of the route are depicted on the following pages.

Figure 11: Bus Rapid Transit Rock Island Railroad Typical Section

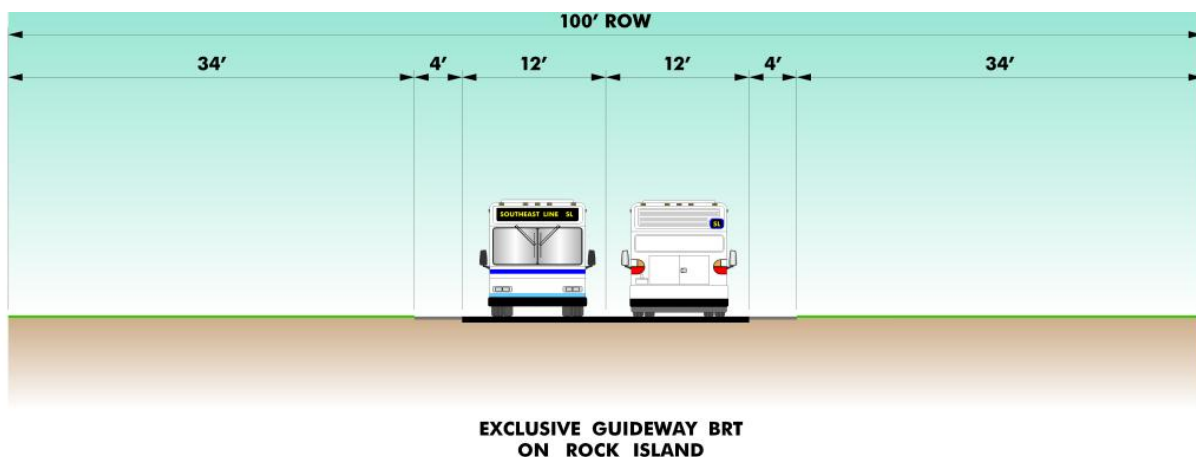


Figure 11: Bus Rapid Transit Linwood Blvd Typical Section, Existing Conditions

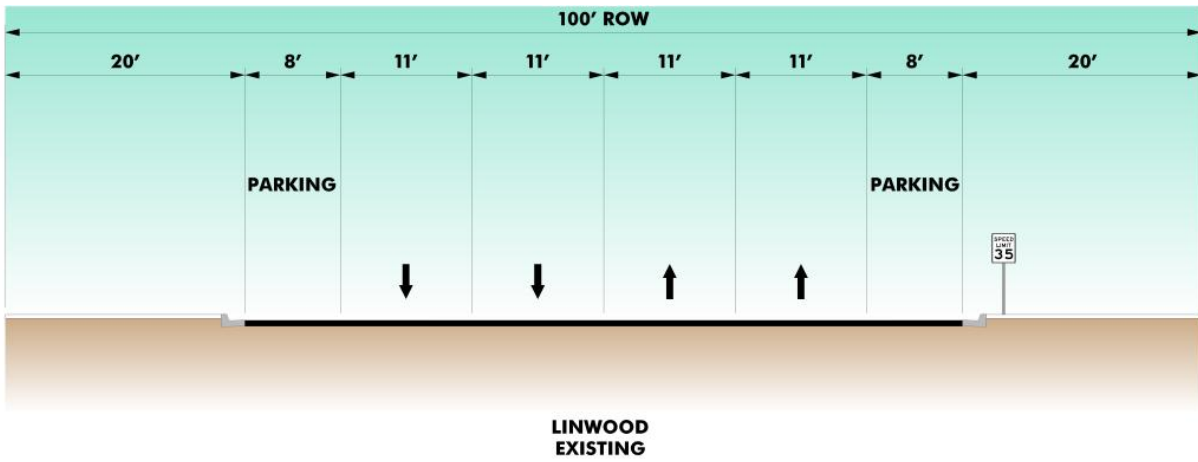


Figure 12: Bus Rapid Transit Linwood Blvd Typical Section

