Technical Memorandum

Results of Tier 1 Screening

Draft: August 15, 2011

Executive Summary

The evaluation process developed to select the Locally Preferred Alternative (LPA) for the Kansas City Downtown Corridor Alternatives Analysis (Downtown Corridor AA) consists of a two-step process. The first step involved an initial Tier 1 screening intended to narrow a long list of potential alignments into a short-list of alternatives, followed by a Tier 2 process in which the short-listed alternatives will be evaluated in more detail. This memo reports on the Tier 1 screening process.

The study team identified seven Tier 1 alignments that could potentially meet the goals and objectives of the Downtown Corridor Study. These alignments are intended to be "mode neutral" and could reasonably accommodate a variety of transportation modes, including streetcar or enhanced bus service. The Tier 1 alternatives were screened according to 13 criteria that are directly tied to the project goals articulated in the Purpose and Needs statement (see Table 1). These criteria include both qualitative and quantitative measures that were examined at varying levels of detail. The screening process focused on how well the alternative alignment fulfilled the screening criteria objective and assigned each alternative a rating of "Best", "Good", and "Fair". The ratings are relative to the other alternatives and should not be interpreted as an absolute score.

The differences between the alternatives are those that offer more potential and better choices in terms of improving transportation linkages, supporting existing activity centers and strengthening development potential. The preliminary results of the Tier I screening process show that **Grand Boulevard and Main Street received the highest number of "Best" ratings**, and it is recommended that these two alignments be brought forward for detailed analysis in Tier 2 (see Table 2).

- Grand Boulevard received best ratings for access to Downtown Kansas City's employment districts as well as other major activity centers. The alignment also offers potential to reduce the amount of surface parking downtown due to its proximity to several surface parking lots. Grand Boulevard also has the least impacts on existing utilities.

- Main Street received best ratings due to its location close to most of Kansas City's major activity centers and visitor facilities. Main Street offers the best potential to improve downtown circulation and to be integrated with existing transit services. In addition, the alternative ranked well in terms of being able to realize development and redevelopment potential. The alignment also received strong support from stakeholders and members of the public.

Overview

The evaluation process that has been developed to select the Locally Preferred Alternative (LPA) for the Kansas City Downtown Corridor Alternatives Analysis (Downtown Corridor AA) consists of a two-step process:

- An initial Tier 1 screening process that focuses on narrowing a long list of potential alignments into a short-list of alternatives.
- A Tier 2 evaluation in which short-listed alternatives will be evaluated in more detail.

This memo presents the results of Tier 1 screening process. The following text describes the screening process and results. Summary and backup documentation is included as Tables C1 – S3 and Figures C1.1 – S2.2.

Tier 1 Alternatives

The study team identified seven alignments that could potentially meet the goals and objectives of the Downtown Corridor study. The alignments are intended to be "mode neutral" and could reasonably accommodate a variety of transportation modes, including streetcar or enhanced bus service. The Tier 1 alternatives consist of two basic types: (1) "bi-directional" alignments in which service would operate in both directions along the same street and (2) "couplet" alignments in which service would operate northbound along one street and southbound along a parallel street. The Tier 1 alternatives consist of seven alignments: four bi-directional alignments and three couplets (see also Figures 1 and 2).

Bi-directional Alternatives

1. Grand Boulevard
2. Main Street
3. Walnut Street
4. Baltimore Street

Couplet Alternatives

5. Grand Boulevard/Walnut Street
6. Main Street/Walnut Street
7. Main Street/Baltimore Street

For each alternative, there are multiple options for how the service would serve the northern (River Market) and the southern (Union Station and Crown Center) ends of the Downtown Corridor. Because each of the Tier 1 alignments could be configured in multiple ways, the Tier 1 screening process did not consider service to the alignment ends as part of the screening process.

Tier 1 Screening Process

The Tier 1 alternatives were screened according to 13 criteria that are directly tied to the project goals articulated in the Purpose and Needs statement (see Table 1). These criteria include both qualitative and quantitative measures that were examined at varying levels of detail.

For each criterion, the study team considered how well the alternative alignment fulfilled the screening criteria objective and assigned each alternative a rating of "Best", "Good", and "Fair". The ratings reflect relative, rather than absolute scores. The screening process involved combining qualitative and

quantitative data as well as comparing and contrasting the alternatives against each other. As a result, an alternative's rating can only be interpreted relative to the other alternatives. Additionally, because the alternatives are located close to each other, the differences between alternatives was subtle. Consequently, in some cases, more than one alternative received a "Best" rating and in other cases, none of the alternatives received a "Best" rating. Likewise, when there were no discernable differences between alternatives each alternative received the same rating.

As discussed in previous technical memos, the approach used in the Tier I screening process involved measuring each alignment against each criteria individually. We have not summarized the conclusions into a single quantitative score to avoid assigning values to qualitative measures and prioritize the ranking of one criterion against another. Instead, the screening process shows the relative score of each alternative performed against the 13 criteria. Taking into consideration all of findings of the screening process, the highest performing alternatives were determined to be those received the most "Best" ratings.

Table 1: Tier 1 Screening Criteria

Project Goal	Screening Criteria
Connect	C1: Improve circulation within the Downtown Corridor; Improve transportation options
	C2: Improve connections between existing downtown activity centers
	C3: Improve pedestrian and bicycle environment
Develop	D1: Support development and redevelopment; provide catalyst for new development and redevelopment
	D2: Increase number of downtown residents
	D3: Support development of new activity centers
Thrive	T1: Support existing residential and employment centers
	T2: Support visitor and special event activities
	T3: Reflect public and stakeholder input
Sustain	S1A: Develop cost-effective transit solutions; improve effectiveness and efficiency of existing transit services
	S1B: Provide reliable transit services
	S2: Reduce the amount of surface space devoted to parking
	S3: Impact on utilities and their potential need for modification or relocation

Figure 1: Bi-direction Alternatives

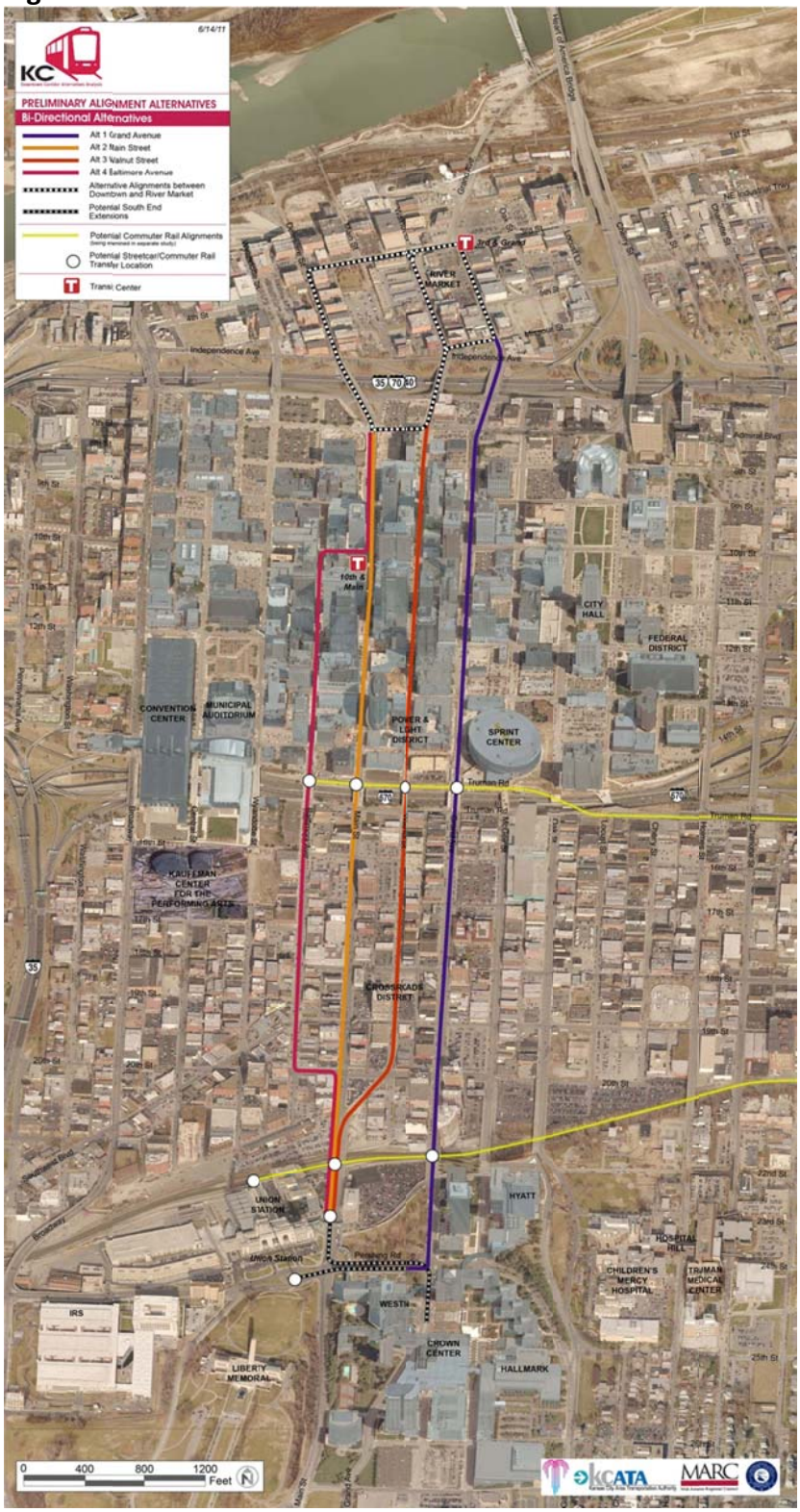
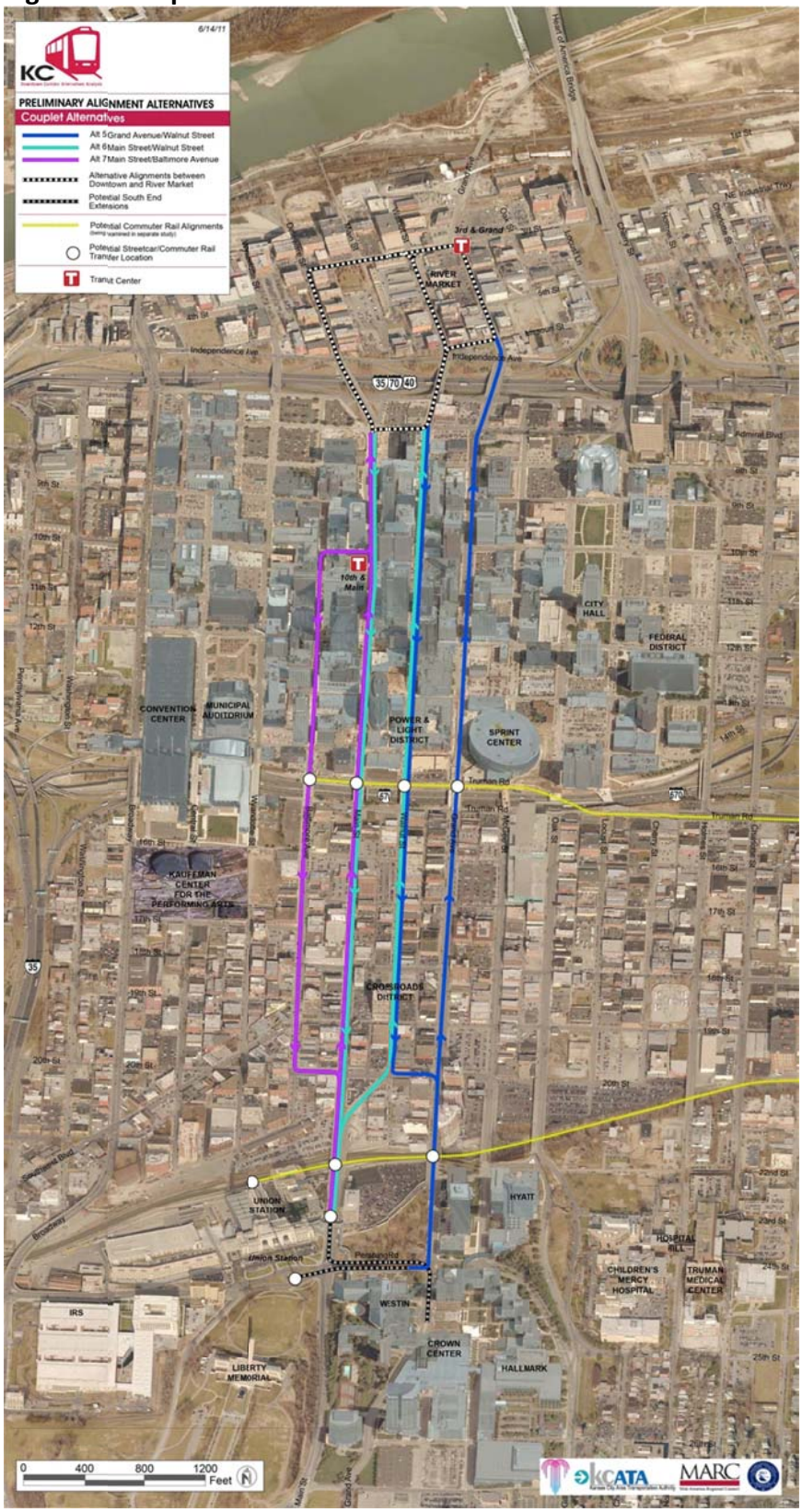


Figure 2: Couplet Alternatives



Key Assumptions

The evaluation process involved a number of assumptions. Among the most critical of these is determining the influence (or capture) area associated with each alignment. In general, the public transportation industry considers transit with walking distance of a destination if it is within ¼ mile of the route or service. As a result, a ¼ mile buffer was used to determine if an activity center is accessible to (or is served by) transit. This buffer was used as to determine access for criterion associated with population and employment (i.e. when people are walking to/from the alignments). For development impacts, however, the study team also based the influence area on the ¼ mile buffer but used a slightly broader interpretation of the rule (see below).

Walking Distances

For the bidirectional alternatives, setting a ¼ mile walking buffer is straight-forward. The study team drew a ¼ mile around the alignment and considered this area to be within walking distance of the alignment. For the couplet alternatives, however, only the area within a ¼ mile within both legs of the couplet was considered within the walking distance of the alignment. This assumption means that walking distance to and from the couplets is smaller as compared with the bidirectional alternatives. The reasoning behind this assumption is that both legs of the couplet must be within ¼ mile of the activity center to be considered within walking distance.

Development Impacts

For development impacts, as discussed, the study team also used the ¼ mile buffer but defined it slightly more broadly. Couplets operate on two parallel streets; instead of requiring both legs of the alignment to be within a ¼ buffer, we allowed the influence area to be ¼ of mile of each leg. As a result, the influence area is larger. This reflects assumptions that development potential is not absolutely tied to walking distance and being close to the alignment, even if it operates only in one direction, is sufficient to encourage development.

Note that no buffer was used at the northern end of the alignments, i.e. the area around City Market because the routing for any potential service has not yet been determined. On the southern end, the buffer is based on the end point of the alignment without any assumption made about a spur along Pershing Road.

Preliminary Findings: Tier 1 Screening

The alternatives have different strengths and weaknesses and each option offers potential as a viable Downtown Corridor. The differences between the alternatives are those that offer more potential and better choices in terms of improving transportation linkages, supporting existing activity centers and strengthening development potential. The preliminary results of the Tier I screening process show that **Grand Boulevard and Main Street received the highest number of "Best" ratings** (see Table 2).

The strengths and weaknesses of each of the alternative alignments are summarized below, starting with Main Street and Grand Boulevard:

- ***Grand Boulevard (Alternative 1) -*** Grand Boulevard was one of the two alternatives that received a greater number of "Best" ratings. Two of the "Best" ratings are associated with providing connections to downtown activity centers and access to employment and residential areas. While several of the alternatives offered access to many of Downtown Kansas City's

primary activity centers (Sprint Center, Power and Light District, Crown Center, Union Station, Convention Center), Grand Boulevard is the only alternative that is accessible to/from the Government District. The Government District is a major employment center, thus the Grand Boulevard alternative is accessible to/from the largest number of jobs.

Grand also has fewer and less significant utility impacts, so it scored high in this criterion as well. Finally, there are several surface parking lots along Grand Boulevard, thus the alternative rated well in terms of offering potential to reduce the amount of surface parking.

As compared to the other alternatives, Grand Boulevard is less effective in supporting visitor and special event activities, due to its distance from the Convention Center and Kauffman Center for the Performing Arts Center. Ratings associated with transit service reliability were also low due to the high number of street closures and potential service conflicts associated with events at the Sprint Center.

- ***Main Street (Alternative 2)*** - Main Street received five Best ratings. The Best ratings are associated with several factors, including Main Street's strategic location in the center of Downtown Kansas City, making it accessible to visitor and special event activities as well as most of Downtown Kansas City's major activity centers. Main Street also rated well in terms of improving circulation in downtown, because it is located adjacent to the 10th and Main Transit Plaza, currently Kansas City's largest and most comfortable transfer locations. In addition, Main Street also offers potential in terms of development and redevelopment impacts; the alignment is a higher value corridor, thus new development also has potential to achieve high values.

  Finally, Main Street is the alternative most preferred by members of the public and stakeholders. Public comment largely echoes other findings associated with Main Street being in the heart of Downtown Kansas City and equidistant from most major activities.

  The only criterion that Main Street did not perform well on is the ability to reduce the amount of surface parking in Downtown. This rating reflects the fact that there are fewer surface parking lots along the corridor.

- ***Walnut Street (Alternative 3)*** – Walnut Street generally performed well in the Tier 1 screening criteria process, but lacked a compelling reason to keep the corridor under consideration. The strengths of the corridor are that it is well positioned in Downtown Kansas City in terms of access to existing employment, activity centers, and visitor attractions.

  Walnut Street, however, is not a primary commercial corridor and consequently, tends to serve "back door" rather than primary access to some of Downtown's major buildings and attractions. In addition, because Walnut Street is not a primary commercial corridor, putting new transit services on Walnut Street would more likely dilute rather than strengthen the existing transit network. It also has less compelling potential development impacts with fewer vacant parcels and fewer larger sized parcels.

- ***Baltimore Avenue (Alternative 4)*** – Baltimore Avenue, like Walnut Street, performed well in the Tier 1 screening criteria process overall, but without exceptional performance in any of the criteria. Baltimore Avenue's strengths include a fairly strategic location in Kansas City with

access to many of Downtown's activity centers, and visitor attractions. The corridor also offers a relatively better location to/from existing residential development and, consequently the best potential to encourage future residential development.

Some of the challenges associated with a Baltimore Avenue alignment are the distance and grade associated with travel to/from the Government District, Downtown's highest concentration of employment. Also, like Walnut Street, Baltimore Avenue is not a primary commercial corridor and tends to provide "back door" access to several of Downtown's main commercial centers. This also means that new transit services would more likely dilute rather than strengthen the existing transit network.

- ***Grand Boulevard and Walnut Street (Alternative 5)*** – The Grand Avenue/Walnut Street couplet alternative produced mixed results in the Tier 1 screening. Both streets are well positioned, such that the couplet provides access to Downtown employment and population, although less than the bidirectional option on Grand Boulevard. The Grand/Walnut couplet also ranked high in terms of potential to support development and reduce the amount of surface parking downtown. The high ranking largely reflects the couplet design which encompasses a larger area that could be positively influenced for development through improved transportation infrastructure.

  Most of the challenges associated with the Grand Boulevard and Walnut Street alternative reflect challenges inherent to a couplet design. Operating service on two streets is a less intuitive service design (i.e. boarding on street and alighting on another). The impact of the service design would affect not only future corridor service, but also existing and future bus service. As a result, transit benefits are relatively more diluted as compared with the other alternatives. Couplets also have increased impacts on the utility system because they require construction and operations on two streets rather than one.

- ***Main Street and Walnut Street (Alternative 6)*** – The Main and Walnut Street alternative performed well in terms of access to/from Downtown's major activity centers as well as several of the visitor and special event activities. Like the other couplets, the Main/Walnut alignment also offers stronger potential to support development and redevelopment because it influences a larger area. The couplet also has few issues with service reliability associated with street closures.

  Consistent with other couplet designs, the Main/Walnut couplet creates a less intuitive service design. However, the Main/Walnut couplet serves the 10th and Main Transit Plaza and thus would partially help strengthen the existing Downtown transit resources, although to a lesser extent than the bidirectional alignment on Main Street. Lastly, couplets have increased impacts on the utility system because they require construction and operations on two streets rather than one.

- ***Main Street and Baltimore Avenue (Alternative 7)*** – The Main Street and Baltimore Avenue couplet received a best rating for its ability to support development and redevelopment. This best rating reflects a larger influence area that includes a fairly large number of vacant parcels along the couplet corridors. The location of the couplet along Main Street and Baltimore Avenue

also means that the alignment is within walking distance of a large number of activity centers and visitor attractions.

Some of the challenges associated with the Main/Baltimore couplet are associated with the less intuitive service design and the relative impact on the Downtown transit network. As a result, as compared with other alternatives, especially the bidirectional ones, the Main/Baltimore couplet is less supportive of efficient and effective transportation options in Downtown. Also, as mentioned, couplet alignments had more utility impacts as compared with bidirectional options due to operations on two streets.

Other findings from the Tier 1 Screening process include:

- Overall, bi-directional alignments scored higher than the couplets. A critical exception to this rule is the ability of the alternative to support development and redevelopment. Because couplets operate on two streets, the alignments will influence a larger area in Downtown Kansas City and thus have a greater potential to support development. Only the Main Street alternative rated as strongly in terms of development and redevelopment potential.

- The couplets scored less well as compared to the bi-directional alternatives in several other screening criteria, namely:

    - With service on two separate streets, couplets have less intuitive service design because riders would board and alight from the service in different locations. This service design also creates relatively confusing interfaces with bus services, especially with east-west connections operating on one-way streets. Consequently, the couplets are less effective at improving transportation options.
    - Walking distance to/from the couplet alternatives is smaller than some of the bidirectional options and thus these alignments were less accessible to/from Downtown Kansas City activity areas.
    - Because the couplets alternatives affect two streets, they have increased impacts on utility systems.
    - Finally, results from initial stakeholder meetings and a single public workshop suggest that the couplet alternatives are less attractive to stakeholders and members of the public.

- There is little difference between the alignments in terms of increasing the number of residents in Downtown Kansas City, thus none received a Best rating. This finding reflects the fact that Downtown Kansas City is currently heavily oriented toward employment, with jobs outnumbering residents 10 to 1. Downtown Corridor service could help support residential development; this criterion will be evaluated more closely in the Tier 2 evaluation.

- Initial screening of the alternatives included looking at the ability of the service to improve transit service to transit dependent populations (i.e., low income or zero vehicle household, individuals with a disability, individuals aged 65 or more or minority individuals). The analysis found that because the number of people living in the downtown corridor is small, the number of transit dependent individuals is likewise small. There is no difference between the alternatives, thus this screening criteria was not carried forward.

Results of the Tier 1 screening process are summarized in Table 2 and details on the individual criteria and each alignment are included as Tables C1 – S3 and Figures C1.1 – S2.2.

Table 2. Tier 1 screening summary matrix

Alternative	C1. Downtown Circulation	C2. Activity Center Connections	C3. Bicycle & Pedestrian Connections	D1. Development & Re-development	D2. Downtown Residents	D3. New Catalyst Projects	T1. Residential & Employment Support	T2. Visitor & Special Events	T3. Public & Stakeholder Input	S1A. Transit Efficiency & Effectiveness	S1B. Reliable Service	S2. Surface Parking Reduction	S3. Utility Impacts	st	Good	ıir
1 Grand	Good		Good	ıir	Good	Fair		Fair	od	Good	Fair		Best	4	5	4
2 Main	Best		Good	est	Good	Good		Best	st	Good	Good		Good	5	8	1
3 Walnut	Fair		Good	od	Good	Fair		Good	od	Fair	Fair		Fair	0	8	5
4 Baltimore	Good		Fair	od	Good	Good		Good	od	Fair	Good		Good	0	11	2
5 Grand Walnut	Fair		Good	est	Good	Good		Fair	ıir	Fair	Fair		Fair	2	4	7
6 Main Walnut	Fair		Good	est	Good	Good		Good	ıir	Fair	Fair		Fair	1	5	7
7 Main Baltimore	Fair		Fair	est	Good	Good		Good	ıir	Fair	Good		Fair	1	6	6

Conclusions: Alternative 2 (Main Street) is the highest rated alignment after considering all objectives. It received the greatest number of "Best" ratings and a high number of "Good" ratings. This is mainly a result of Main Street's connections with downtown activity centers, special event venues, and transportation options, as well as its potential for development/redevelopment. Alternative 1 (Grand Boulevard) is second due to one fewer "Best" rating and a few more "Fair" ratings. Grand Boulevard has good connections to employment centers and other activity centers, and has the best pedestrian and bicycle environment, but it doesn't support visitor and special event activies as well as other alternatives. The reliability of transit service along Grand Boulevard also rates lower than other options. In general, the bidirectional alignments rate higher than the couplet ones, primariliy due to the smaller service area that reduces the number of transit and activity center connections. Service would also be less intuitive with the couplet alignments, and interactions with the local bus service would have to be carefully considered.

Notes: Walking distance analyses for the couplet alignments considers the area that can be reached by *both* the northbound and southbound trips, while development impact analyses for the couplets considers the area that can be reached by *either* the northbound or southbound trips.

Table C1. Improve circulation within the Downtown Corridor; improve transportation options

Alternative	Serves 10th & Main Transit Center	Other Considerations	Fulfills Objective
1 Grand	No (2 blocks away)	It may be desirable to move many existing bus routes from Grand Boulevard to Main Street to focus streetcar service on one major north-south arterial and bus service on the other (Main Street). This would provide very strong transit service on both primary Downtown Corridor arterials. The Grand Boulevard alignment would not directly connect with the 10th & Main Transit Center, which would be a more convenient and comfortable transfer location than locations along Grand Boulevard (since passengers could wait on-board KCATA buses that layover at 10th & Main).	Good
2 Main	Yes	It would likely be desirable to move Main Street MAX from Main Street to Grand Boulevard in order to provide premium transit service on both major north-south arterials. This would provide very strong transit service on both primary Downtown Corridor arterials. Also, this alignment would directly serve the 10th & Main Transit Center, which is currently the most attractive and comfortable transfer location in downtown.	Best
3 Walnut	No (1 block away)	Existing bus routes would likely stay focused on Main Street and Grand Boulevard, so this alignment creates three parallel north-south streets with strong transit service. This could dilute transit benefits.	Fair
4 Baltimore	Yes	Existing bus routes would likely stay focused on Main Street and Grand Boulevard, so this alignment creates three parallel north-south streets with strong transit service. This could dilute transit benefits. However, this alignment would directly serve the 10th & Main Transit Center, which is currently the most attractive and comfortable transfer location in downtown.	Good
5 Grand Walnut	No (1 - 2 blocks away)	This alignment would produce a less intuitive overall transit service design with two-way bus service on Grand Boulevard but only one-way streetcar/enhanced bus service. Local bus connections would be on the same street in one direction but on another street in the opposite direction.	Fair
6 Main Walnut	Yes (only in one direction)	This alignment would produce a less intuitive overall transit service design with two-way bus service on Main Street but only one-way streetcar/enhanced bus service.	Fair
7 Main Baltimore	Yes (both directions)	This alignment would produce a less intuitive overall transit service design with two-way bus service on Main Street but only one-way streetcar/enhanced bus service. However, this alignment would directly serve the 10th & Main Transit Center, which is the most attractive and comfortable transfer location in downtown.	Fair

Conclusions: Bidirectional alignments would produce a more intuitive service design, especially in terms of interaction with local bus service. Couplet alignments could result in somewhat confusing interfaces with local bus service. Alignments that use Main Street and/or Baltimore Avenue would serve the 10th & Main Transit Center, which is currently a key downtown bus location. Overall, Alternative 2 (Main Street) would provde the best connections, followed by Alternatives 1 (Grand Boulevard) and 4 (Baltimore Avene), but effective connections could be provided with all alignments.

Notes: KCATA would likely reconfigure service in the Financial and Government Districts to make it simpler and more straightforward. This could be accomplished equally well with all alignments. This downtown service reconfiguration would allow all alignments to provide "last mile connectivity" equally well. Bus services could also be easily reconfigured in the Crown Center/Union Station area to provide effective connections to all alignments. Finally, all alignments would connect equally well with regional rail and transit services from Johnson County.

Table C2: Improve connections between existing downtown activity centers

Alternative	Major Activity Centers Within 1/4 Mile of Alignment	Summary	Fulfills Objective
1 Grand	12	Close to the Sprint Center, Power & Light District, City Hall, Union Station, Crown Center, and many activity centers in the Government District. Does not directly serve the Convention Center or the Kaufmann Center for the Performing Arts. It would be farthest from activity centers to the west such as the Convention Center, but perceived distances could be shortened through the development of attractive pedestrian corridors.	Best
2 Main	11	Close to the Sprint Center, Power & Light District, Union Station, Crown Center, the Convention Center, and the Kaufmann Center for the Performing Arts. Does not directly serve the Government District. Main Street provides a large amount of physical space in which to implement Downtown Corridor service and streetscape improvements. Main Street also "splits the distance" between most major activity centers, and coupled with attractive pedestrian connections, could provide the best connections.	Best
3 Walnut	12	Includes much of the same area covered by the Grand Boulevard alignment, minus some of the Government District (e.g. the Bolling Federal Building, County Courthouse, and State Office Building). Directly serves the Convention Center and Kaufmann Center for the Performing Arts. Since Walnut Street is a secondary street, it would provide service more to the "back doors" of Grand Boulevard and Main Street activities, rather than direct front door service on one of these primary corridors. Also, KCATA services will remain focused on Grand Boulevard and/or Main Street, potentially creating less convenient interfaces with other transit services.	Good
4 Baltimore	11	Similar connections to activity centers as Main Street. Does not directly serve the Government District or some large office centers south of the Sprint Center. As with Walnut Street, service along Baltimore Avenue could be perceived as service to the "back door" of Grand Boulevard rather than high quality service through a primary corridor. Again similar to Walnut Street, KCATA services will remain focused on Grand Boulevard and/or Main Street, potentially creating less convenient interfaces with other transit services. Baltimore Avenue is also the farthest from the Government District, and walks between the two through the Main Street "valley" is perceived as difficult by some.	Good
5 Grand Walnut	10	Lowest number of activity centers served because the Government District is not directly served along with some areas west of Walnut Street. Would combine the pros and cons of the Grand Boulevard and Walnut Street bidirectional alignments. Also, with service split between two streets, connections with other services and boarding locations for reverse trips would be less intuitive.	Fair
6 Main Walnut	11	Similar activity center connections as Main Street. Would combine the pros and cons of the Grand Boulevard and Walnut Street bidirectional alignments. As with other couplet alignments, with service split between two streets, connections with other services and boarding locations for reverse trips would be less intuitive.	Fair
7 Main Baltimore	11	Similar activity center connections as Main Street. Would combine the pros and cons of the Grand Boulevard and Walnut Street bidirectional alignments. As with other couplet alignments, with service split between two streets, connections with other services and boarding locations for reverse trips would be less intuitive.	Fair

Conclusions: Alternatives 1 (Grand Boulevard) and 2 (Main Street) would provide the best opportunities for the development of high quality Downtown Corridor service with the most convenient connections to activity centers and other transit services.The alignments generally serve the Sprint Center, Power & Light District, Crown Center, and Union Station, but there is often a tradeoff between service to the Government District and the Convention Center/Kaufmann Center for the Performing Arts. Walnut Street bridges both areas somewhat but does not reach the entire Government District and the Convention area is on the western edge of its service area.

Notes: "Directly served" areas are those that are within a 1/4 mile buffer of each alignment. The analysis for the couplet alignments, however, only considers the area that can be reached by both the northbound and southbound trips. When overlaying service area buffers from the bidirectional alignments to discover the couplet service area, only the area of intersection is fully served by the couplets.

Table C3: Provide good bicycle and pedestrian connections.

Alternative	Primary Road Configuration	Pedestrian Environment	Bicycle Environment	Fulfills Objective
nd	2 traffic lanes in each direction (3 during peak periods) Vehicle parking on both sides of street (off peak periods) Sidewalks	Offers good pedestrian environment with wide streets and front door access to major activity centers. Traffic volumes are generally low, but speeds can be high..	Only street currently designated as a Bike Route by Bike KC (from 12th Street north through the River Market, and also south of Pershing). Parking may need to be modified to accommodate bikes. Bikes may also be accommodated on adjacent streets.	Good
in	2 traffic lanes in each direction Limited on-street parking Dedicated bus lanes along some segments Sidewalks	Major route for pedestrians with many activity centers and commercial activity. Generally good environment for pedestrians.	Limited on-street parking improves environment for bicyclists but bus only lanes (peak period) may create potential conflicts during peak periods and for some directions only. Bikes may also be accommodated on adjacent streets.	Good
nut	Combination of one-way and two-way travel 4 travel lanes On-street parking and dedicated bus lanes in segments Sidewalks	Major route for pedestrians that traverses middle of the Power & Light entertainment district. The street has lower traffic volumes than Main Street and Grand Boulevard, which makes it a good street for pedestrians.	Has lower traffic volumes than other major street, but on street parking and bus only lanes creates potential conflicts for bicyclists. On-street parking may need to be modified to accommodate bikes. One-way northbound segment (north of 12th St) may also deter cyclists. Bikes may also be accommodated on adjacent streets.	Good
nore	One-way north of 12th Street; two-way south of 12th On-street parking including angled parking south of 14th Street Sidewalks	Pedestrian environment varies along corridor, with some segments more attractive than others, but has lowest traffic volume of four corridor alternatives.	Bicycle environment varies considerably due to one-way traffic patterns and angled parking. Improving bicycle environment would require changing angled parking, which is especially difficult for bicyclists. Bikes may also be accommodated on adjacent streets.	Fair
nd nut	See Grand and Walnut	Both Grand and Walnut have good pedestrian environments.	Grand is an attractive corridor for bicyclists. With some changes, Walnut offers adequate bicycle environment.	Good
in nut	See Main and Walnut	Main and Walnut have good pedestrian environments.	Both Main and Walnut offer adequate bicycle environment with some challenges associated with on-street parking and one-way traffic patterns.	Good
in nore	See Main and Baltimore	Both Main and Baltimore have good pedestrian environments.	Main offers offer adequate bicycle environment with some challenges. Baltimore would require changes to angled parking to accommodate bicyclists.	Fair

Conclusion: All alignments offer good and comparable pedestrian environments.Alternative 1 (Grand Boulevard) offers the best environment for bicycle travel and would require the least amount of improvements to make the corridor more attractive. Alternative 2 (Main Street) and Alternative 3 (Walnut Street) offer some challenges associated with one-way traffic, peak period bus lanes, and on-street parking, but have a good environment.Alternative 4 (Baltimore Avenue) has additional challenges due to angled parking south of 14th Street.All couplets involve travel on one or more of the less desirable corridors (i.e. Main Street, Walnut Street, or Baltimore Avenue).

Source: Review of corridors from pedestrian and cyclists perspective.

Table D1: Support development and redevelopment; provide catalyst for new development and redevelopment

Alternative	Within ¼ Mile of Alignment: Vacant Parcels (Million Sq. Ft.)	Within ¼ Mile of Alignment: Relative Value of Developed Parcels	Within ¼ Mile of Alignment: Relative Value of Vacant Parcels	Within ¼ Mile of Alignment: Relative Value of Potential Redevelopment	Summary	Fulfills Objective
1 Grand	2.74	0.99	1.01	0.92	Service area excludes a cluster of vacant parcels between Wyandotte and Central Streets, which have large potential for development (the prime reason for this alternative having the lowest potential). Includes a cluster between Oak and Locust Streets.	Fair
2 Main	2.96	1.02	1.00	1.01	Higher potential for redevelopment, largely due to the high value of developed parcels in this corridor.	Best
3 Walnut	2.93	1.00	1.00	0.97	Service area does not include a cluster of vacant parcels between Oak and Locust Streets, along with Central Street and Broadway Boulevard. The latter cluster of vacant parcels have high potential for redevelopment, leading to this alternative's smaller overall potential.	Good
4 Baltimore	3.02	1.02	1.04	1.01	Highest inventory of vacant parcels available for redevelopment among the bidirectional alternatives, though the value of developed parcels on the western side of the corridor is smaller.	Good
5 Grand Walnut	3.20	0.97	0.94	1.03	Couplet design involves more parcels for development due to the larger influence area. Largest inventory of vacant parcels among all alternatives, which results in a high potential for redevelopment.	Best
6 Main Walnut	3.12	0.99	0.98	1.03	Couplet design involves more parcels for development due to the larger influence area.	Best
7 Main Baltimore	3.10	1.01	1.03	1.03	Couplet design involves more parcels for development due to the larger influence area. Lowest inventory of vacant parcels among the couplet alternatives, but high value of developed parcels in this service area results in a higher potential for redevelopment.	Best

Conclusions: Couplet alternatives have a larger influence area and therefore generally have a greater potential to spur redevelopment. Main Street also has a high potential largel due to the high value of the developed parcels in the corridor. Due to the geographic distribution and clustering of vacant parcels, the alternatives that serve more western areas generally have more vacant parcels available for development. However, a significant factor in determining an alternative's potential for redevelopment is the increase in value associated with development, so areas with the greatest difference in value between developed and vacant parcels will have high potential for redevelopment.

Notes/Source: This assumes vacant parcels that are redeveloped would increase in value to approximate the average developed parcel in the corridor. In reality, redeveloped parcels oftenappreciate even higher due to the added value of streetcar service (typically 15% or higher), though this additional appreciation is not included, which results in a conservative estimate of the redevelopment potential. "Vacant" parcels are those considered vacant (without a structure) in Jackson County's assessment GIS database and often includes parcels that would be considered underdeveloped, such as surface parking. Data is from Jackson County Assessor GIS database.

Table D2: Increase number of downtown residents

Alternative	Within ¼ Mile of Alignment: Vacant Parcels (Million Sq. Ft.)	Within ¼ Mile of Alignment: Population	Summary	Fulfills Objective
	2.73	4,380	In general, the western side of the corridor is slightly more oriented toward residential uses than the east.. Expansion of existing areas with a residential presence would be more likely than the development of entirely new residential areas.However, there are clusters of residential development between Grand Boulevard and Walnut Street in the Financial District, just south of the Power & Light District, and between 20th Street and 22nd Street.A Grand Boulevard alignment could spur additional residential development in those areas.	Good
	2.70	4,970	Could serve most existing residential development, as well as new development in those areas, although less directly than Grand Boulevard or Walnut Street alignments.	Good
	2.76	4,663	A Walnut Street alignment would serve many of the same residential clusters as the Grand Boulevard.However, since Grand Boulevard and Main Street are primarily commercial streets, and would remain so even with Downtown Corridor service on Walnut Street, a Walnut Street alignment could potentially become more residentially oriented than either Grand Boulevard or Main Street.	Good
	2.81	4,893	Would provide the best service to Quality Hill (although much of the area would be beyond ¼ mile) and could make housing in this area more attractive and attract new residential development. In a similar manner as Walnut Street, a Baltimore Avenue alignment could potentially become more residentially oriented than either Grand Boulevard or Main Street.	Good
	2.50	4,380	Impacts would likely be a cross between those for Alignments 1 and 3.	Good
	2.53	4,647	Impacts would likely be a cross between those for Alignments 2 and 3.	Good
	2.68	4,893	Impacts would likely be a cross between those for Alignments 2 and 4.	Good

Conclusions: Alternatives 2 (Main Street) and 4 (Baltimore Avenue) would likely be slightly more supportive of new residential growth, although the differences between all alignments would be small.

Notes/Sources: At the present time, the Downtown Corridor is heavily oriented toward employment, and jobs outnumber residents approximately 10 to 1.The largest cluster of residential development is in Quality Hill, much of which is more than ¼ mile from all alignments.Other clusters are all small.The map shows the block bounded by 10th & 11th Streets and Locust & Cherry Strees as vacant. However, this has since been developed into the JE Dunn Construction World Headquarters. The analysis for the couplet alignments only considers the area that can be reached by both the northbound and southbound trips. When overlaying service area buffers from the bidirectional alignments to discover the couplet service area, only the area of intersection is fully served by the couplets. Data from Jackson County Assessor GIS database and the 2007 KCMO travel demand model (adapted from MARC).

Table D3: Support larger "catalyst" development projects

Alternative	Within ¼ Mile of Alignment: Acres of Vacant Parcels	Within ¼ Mile of Alignment: Acres of Large Parcels (>1 acre)	Within ¼ Mile of Alignment: Number of Large Parcels (>1 acre)	Summary	Fulfills Objective
1 Grand	61.5	18.6	24	Does not serve a cluster of large-sized parcels along Wyandotte Street from 6th Street to 11th Street; the only alignment to serve a cluster between 10th and 11th Streets west of Locust Street (East Village).	
2 Main	67.2	19.5	24	Serves large parcels between 9th and 10th Streets west of Central Street and parcels along Wyandotte Street north of 11th Street.	
3 Walnut	66.3	18.4	20	Same as Alternative 2 but does not include large parcels between 9th and 10th Streets west of Central Street.	
4 Baltimore	68.8	21.1	27	Serves a cluster of large-sized parcels between 8th and 6th Streets from Central Street to Baltimore Avenue; the only alternative to serve a cluster of parcels along Broadway Street just south of 12th Street.	
5 Grand Walnut	72.5	20.1	27	Couplet design expands the influence on vacant parcels. Largest inventory of vacant parcels.	
6 Main Walnut	70.7	19.5	24	Couplet design expands the influence on vacant parcels. Does not serve a cluster of vacant parcels between 10th and 11th Streets west of Locust Street (East Village).	
7 Main Baltimore	70.4	21.1	27	Couplet design expands the influence on vacant parcels. Largest inventory of large parcels with the potential to become catalyst development projects.	

Conclusions: The couplet alternatives have an expanded service area and therefore have the potential to influence more vacant parcels. All alternatives have a relatively similar potential to support development of new activity centers because each alternative serves a common set of large parcels between Wyandotte and Oak Streets. Depending on the alternative, one cluster of large parcels to the east (East Village) may be served and three clusters of large parcels to the west may be served. These four parcel clusters result in the minor differences between alternatives.

Notes/Source: The analysis for the couplet alignments considers the area that can be reached by either the northbound or the southbound legs. Land use GIS data from Jackson County.

Table T1: Support existing residential and employment centers

Alternative	Within ¼ Mile of Alignment: Population	Within ¼ Mile of Alignment: Employees	Summary	Fulfills Objective
	4,380	51,551	Highest number of employees because it is close to the Sprint Center, Power & Light District, City Hall, Union Station, Crown Center, and many activity centers in the Government District. However, lowest population because there are very few residential areas along Grand Boulevard.	
	4,970	47,919	Close to the Sprint Center, Power & Light District, Union Station, most of Crown Center, the Convention Center, and the Kaufmann Center for the Performing Arts. The service area does not include the Government District, which mostly accounts for the lower employment numbers. Highest population due to the more residential character of the corridors west of Grand Boulevard.	
	4,663	49,905	Includes much of the same area covered by the Grand Boulevard alignment; however, some of the Government District is not within its service area (e.g. the Bolling Federal Building, County Courthouse, and State Office Building), thus accounting for the slightly smaller employment numbers. In addition, this alignment is closer to the Convention Center and Kaufmann Center for the Performing Arts, making up for some of the employment loss.	
	4,893	46,832	Similar connections to activity centers and population as Main Street but has the lowest number of employees of any bidirectional alignment. It does not include the Government District or some large office centers south of the Sprint Center.	
	4,380	48,403	The number of employees served is high but less than either Grand Boulevard or Walnut Street because parts of the Government District are not served nor some of the areas west of Walnut Street.	
	4,647	43,528	Combination of alignments along Main and Walnut Streets, but it does not directly serve the Government District. The overall character is more residential than Grand Boulevard.	
	4,893	46,516	Combination of alignments along Main Street and Baltimore Avenue. Does not directly serve the Government District and overall character is more residential than Grand Boulevard.	

Conclusions: There are no large differences in the number of residents and employees served (4,365 to 4,969 residents and 43,528 to 51,551 jobs). Grand Boulevard would serve the highest number of jobs because it provides the best service to the Government District.

Notes/Source: The analysis for the couplet alignments only considers the area that can be reached by both the northbound and southbound trips. When overlaying service area buffers from the bidirectional alignments to discover the couplet service area, only the area of intersection is fully served by the couplets.Data is from 2007 KCMO travel demand model (adapted from MARC).

Table T2: Support visitor and special event activities

Alternative	Within ¼ Mile of Alignment: Major Hotels	Hotel Beds	Special Event Venues	Number of Events	Attendance	Summary	Fulfills Objective
1 and	6	2,469	4	N/A	N/A	Close to the Sprint Center, Power & Light District, Union Station, and most of Crown Center. Has the lowest number of hotels and hotel beds because many area hotels are clustered around the Convention Center further west.	Fair
2 ain	8	3,474	6	N/A	N/A	Close to the Sprint Center, Power & Light District, Union Station, most of Crown Center, the Convention Center, and the Kaufmann Center for the Performing Arts. Is accessible to most hotels and a large number of hotel beds.	Best
3 lnut	8	3,474	6	N/A	N/A	Includes much of the same area covered by the Grand Boulevard alignment. Also includes the Convention Center and Kaufmann Center for the Performing Arts, which accounts for the greater number of hotel beds. Is accessible to most hotels and a large number of hotel beds.	Good
4 more	8	3,474	6	N/A	N/A	This alignment has similar connections to activity centers as Main Street. Generally, no street closures currently along Baltimore Avenue. Is accessible to most hotels and a large number of hotel beds.	Good
5 and lnut	6	2,469	4	N/A	N/A	Similar access to hotels and special event venues as the Grand Boulevard alignment, minus the Convention Center and the Kaufmann Center. Is accessible to most hotels and a large number of hotel beds.	Fair
6 ain lnut	8	3,474	6	N/A	N/A	Similar to both the Main Street and Walnut Street alignments.	Good
7 ain more	8	3,474	6	N/A	N/A	Similar to both the Main Street and Baltimore Avenue alignments.	Good

Conclusions: All alignments serve hotels and special event venues well. However, alignments that utilize Grand Boulevard perform slightly worse because its service area does not include the Convention Center or the Kaufmann Center for the Performing Arts. Many major hotels are clustered around the Convention Center, which are not served by Grand Boulevard alignments.

Notes/Sources: The analysis for the couplet alignments only considers the area that can be reached by both the northbound and southbound trips. When overlaying service area buffers from the bidirectional alignments to discover the couplet service area, only the area of intersection is fully served by the couplets.Hotel information from 2007 KCMO travel demand model (adapted from MARC).

Table T3: Incorporate public and stakeholder input

Alternative	Comments Expressing Support	Comments Expressing Concern	Fulfills Objective
ALL	Support for alternative that serves River Market.	Concern over terminus at southern end of alignment, especially if service extends south of Pershing Road.	
	Wide street with direct routing through downtown. Adjacent to major activity centers such as Sprint Center. Traffic congestion is not a concern.	Connection to Union Station is not direct. Would be affected by street closures.	
	Street is straight and fairly wide, offers centralized line and logical choice through center of downtown. Equidistant to Convention Center, Power & Light and Sprint Center. Would be easy to extend service to the Plaza.	Traffic congestion may be problem at intersection with 11th Street. MAX already on Main Street.	
	Attractive street with flat profile. Offers connections to Power & Light and Crossroads and still close to Sprint Center. Good access to River Market.	Corridor is fairly narrow; may have difficulty accommodating additional transportation service. Also subjected to street closures.	
	Offers connections to downtown residential areas and convention hotels.	Considered too far west. Corridor is fairly narrow. Bypasses many of the major activity centers, such as Power & Light and Crossroads.	
	Creates more street walking and street traffic to support economic development. Offers benefit to wider group of people	Issues reflect general concern over using couplets (i.e. higher costs, more difficult to understand, and diluting development potential).	
	Less interference with events at Sprint Center and street closures. Offers direct connections to major activity centers.	Issues reflect general concern over using couplets (i.e. higher costs, more difficult to understand, and diluting development potential).	
	Equidistant from Spring Center and Performing Arts Center/Convention Center. Works around disruptions associated with Sprint Center events.	Issues reflect general concern over using couplets (i.e. higher costs, more difficult to understand, and diluting development potential).	

Conclusions: All alternatives had supporters.Main Street received the strongest and most consistent stakeholder and community support, largely due to its central location and access to activity centers.Grand Boulevard had strong support but also received more negative comments as compared to Main Street. Couplet alternatives were generally less well perceived, primarily due to concerns over service design rather than alignment.

Notes/Source: Comments represent public and stakeholder opinion.Data drawn from stakeholder interviews and public comment received at June 21, 2011 Public Open House.

Table S1A: Develop cost-effective transit solutions; improve effectiveness and efficiency of existing transit service

Alternative	Summary	Fulfills Objective
	Most bus service between Crown Center and the Financial District now operates on Grand Boulevard. With Downtown Corridor service, most or all bus service could be shifted to Main Street where it could share existing MAX facilities (bus lanes and stations).Alternatively, Grand Boulevard could be developed as the corridor's primary transit street, with both streetcar/enhanced bus and most or all local bus service. Synergies between the Downtown Corridor and Grand Boulevard Streetscape projects could reduce costs. In either case, transit facility improvements would be focused on Grand Boulevard and few, if any, infrastructure improvements would be made on other streets.	
	With Downtown Corridor service on Main Street, it would likely be desirable to shift Main Street MAX service to Grand Boulevard. Bus facility improvements (bus lanes, stops/stations, etc.) could be implemented on Grand Boulevard as part of the Grand Boulevard Streetscape project. In this case, significant transit service improvements would be implemented on both Main Street and Grand Boulevard. The development of streetcar service on Main Street and the shifting of Main Street MAX would provide strong transit spines on each of the corridor's two major north-south streets.	
	There would be few compelling reasons to shift existing north-south bus services from either Main Street or Grand Boulevard to Walnut Street as it would likely be slower and a block away from higher activity centers. Thus, there would be fewer potential synergies between Downtown Corridor and local bus service.	
	With Downtown Corridor service on Baltimore Avenue, it is likely that Main Street MAX service would remain on Main Street, as Main Street provides for faster service, which is a key element of MAX service. As a result, the corridor's two premium services would be located only one block apart. Therefore, they would compete with each other, perhaps more than they would complement each other. It would also mean that the two premium north-south services would be focused on the western side of the corridor, which would provide less service coverage than other Downtown Corridor/Main Street MAX combinations.	
	Similar to Alternative 1 (Grand Boulevard), except that Grand Boulevard would become a transit spine to a lesser extent than with Alternative 1 because streetcar service would be split between Grand Boulevard and Walnut Street.	
	Similar to Alternative 2 (Main Street), except that Main Street would become a transit spine to a lesser extent than with Alternative 2 because streetcar service would be split between Main Street and Walnut Street.	
	Similar to Alternative 2 (Main Street), except that Main Street would become a transit spine to a lesser extent than with Alternative 2 because streetcar service would be split between Main Street and Baltimore Avenue.	

Conclusions: Alternative 1 (Grand Boulevard) provides the best potential for efficient downtown transit service as it (1) offers the opportunity to develop strong transit spines on both of the Downtown Corridor's major north-south arterials (Main Street and Grand Boulevard) and (2) creates possible synergies with the Grand Boulevard Streetscape project. However, it would not provide direct connections at the 10th & Main Transit Center.Alternative2 (Main Street) provides the second best potential for the strengthening of the overall downtown transit system as it (1) offers the opportunity to develop strong transit spines on both of the Downtown Corridor's major north-south arterials (Main Street and Grand Boulevard) and (2) would provide direct connections at the 10th & Main Transit Center.

Notes: KCATA, as part of its CSA efforts, desires to rationalize bus circulation to, from, and through the Financial and Government Districts and plans to orient the reconfiguration around the selected Downtown Corridor alignment. All alignments would provide for the development of a more efficient reconfiguration of Financial and Government District bus service. All alignments could also provide for the conversion of some bus service that operate through the corridor (originating from the north or south) to terminate at the ends of the Downtown Corridor service, with continuing service then provided by the streetcar/enhanced bus.

Table S1B: Provide reliable transit service

Alternative	Annual Partial Day Street Closures	Annual Full Day Street Closures	Summary	Fulfills Objective
1 Grand	5	16	There are a significant number of street closings on Grand Boulevard in front of the Sprint Center that are associated with Sprint Center events. These include partial day closures to help control pedestrian circulation to large events where the street is shut down during the event and for a short duration before and after, and full day closures that can last for several days at a time.(For the six month periods between March and August 2011, there were 5 partial days closures and 16 days of full day closures).During these times, if streetcar service were to operate through the street closure section, there would almost certainly be delays, although these delays could likely be managed. Enhanced bus service would detour around the street closures, which would add a few minutes to running times.	Fair
2 Main	0	0	Through the Financial District, Main Street has two travel lanes in each direction. South of 10th Street, parking is prohibited, but north of 10th Street, it is permitted during off-peak periods. This creates a minor choke point in this area. If on-street parking were maintained, there could be some minor delays.	Good
3 Walnut	7	0	South of the loop, Walnut Street is one-way northbound with two lanes of traffic and parking on both sides. With two-way Downtown Corridor service, either the left-most lane would need to be converted to a southbound transit lane, or alternatively, the street could be converted to two-way operation. In any event, traffic volumes are light, and reliable operation could be expected. Within the loop, Walnut Street has three to four travel lanes, and with the exception of a two block section between Truman Road and 12th Street, is also one-way northbound. However, using similar measures as described for south of the loop, reliable service could be provided. Walnut Street has 7 partial day street closures due to events at the Power & Light District. During these times, if streetcar service were to operate through the street closure section, there would almost certainly be delays, although these delays could likely be managed. Enhanced bus service would detour around the street closures, which would add a few minutes to running times.	Fair
4 Baltimore	1	0	South of 12th Street, Baltimore Avenue is two-way with one lane of traffic in each direction and parking on both sides (some of which is back-in angle parking).Traffic volumes are light, and reliable operation could be expected. North of 12th Street, Walnut Street is one-way with two northbound travel lanes and parking on each side. With Downtown Corridor service, either the left-most lane would need to be converted to a southbound transit lane, or alternatively, the street could be converted to two-way operation. In any event, reliable operation could be expected.	Good
5 Grand Walnut	12	16	With Grand Boulevard/Walnut Street service, it would be desirable for northbound service to operate on Grand Boulevard and southbound service to operate on Walnut Street (since Americans are used to right-hand side operations).This would require at least one lane of much of Walnut Street to be converted to southbound operation, and reliable service could be provided throughout the corridor.	Fair
6 Main Walnut	7	0	With Main Street/Walnut Street service, northbound service would most likely operate on Walnut Street and southbound service on Main Street. Service could be operated reliably on both streets.	Fair
7 Main Baltimore	1	0	With Main Street/Baltimore Avenue service, it would be desirable for northbound service to operate on Main Street and southbound service on Baltimore Avenue. This would require at least one lane on Baltimore Avenue between 10th Street and 12th Street to be converted to southbound operation, and reliable service could be provided throughout the corridor.	Good

Conclusions: On a day-to-day basis, all alignments would provide for reliable service. The most significant exception would be Grand Boulevard, where there would be conflicts between Downtown Corridor service and Sprint Center special events, and which would likely produce delays during those times.

Notes/Source: There are a number of special events at Crown Center during which Grand Boulevard is closed south of Pershing Road. As long as Downtown Corridor service does not extend south of Pershing Road, none of these events would impact Downtown Corridor service to a significant extent. Data is from Kansas City Convention & Visitors Association for 2011.

Table S2: Convert surface parking to higher value uses

Alternative	Acres of Surface Parking Within ¼ Mile	Summary	Fulfills Objective
1 Grand	95.6	Includes free surface lots between Cherry/Locust and 10th/11th. However, this has since been developed into the JE Dunn Construction World Headquarters. Highest amount of surface parking among the bidirectional alternatives.	Best
2 Main	86.1	Access to some free surface lots that Grand Boulevard and Walnut Street alignments do not have. Parcels seem large enough for development potential.	Fair
3 Walnut	89.1	Does not provide any particular benefit in terms of access to surface parking. Lowest acreage of surface parking among all alternatives.	Good
4 Baltimore	88.6	Includes several smaller free surface lots towards southern end of the alignment but most seem too small for substantial development potential. Lacks access to large paid lot that other alignments have (on Locust between 19th and 20th).	Good
5 Grand Walnut	103.1	Couplet alignment expands the influence of the alignment to a greater area, capturing the surface lots in both the Grand and Walnut bidirectional alternatives. Highest acreage of surface parking among all alternatives.	Best
6 Main Walnut	94.8	Couplet alignment expands the influence of the alignment to a greater area, capturing the surface lots in both the Main and Walnut bidirectional alternatives.	Good
7 Main Baltimore	89.8	Couplet alignment expands the influence of the alignment to a greater area, capturing the surface lots in both the Main and Baltimore bidirectional alternatives.	Good

Conclusions: The couplet alignments have greater potential to convert surface parking to higher uses than their component streets individually due to a larger influence area. There is a greater concentration of surface parking in the eastern areas, which give alternatives utilizing Walnut and Grand greater potential for redevelopment. Alternative 1 (Grand) and Alternative 5 (Grand and Walnut) provide the greatest potential to convert surface parking into higher value uses.

Notes/Source: Square footage of garage parking was excluded from the calculation of surface parking. Data from Jackson County Assessor GIS database.

Table S3: Impact on utilities and their potential need for modification or relocation

Alternative	Ranking AT&T	Ranking Verizon/MCI	Utility Score	Summary	Fulfills Objective
1 Grand	1st	2nd	360	Least amount of utility impacts of all alignments because there are few storm sewer, communication line, and steam/chilled water impacts.	
2 Main	2nd	4th	391	Least amount of water, sanitary sewer, and gas utility impacts but a very high impact on communication lines. A large duct line containing numerous communication lines for multiple companies exists along Main Street.	
3 Walnut	3rd	3rd	419	Highest amount of utility impacts of all bidirectional alignments because of high impacts on sanitary sewer, storm sewer, combined sanitary and storm sewer, and gas utilities. However, small impact on electric lines.	
4 Baltimore	3rd	1st	417	High impacts on water, sanitary sewer, and steam/chilled water utilities. Least impact on combined sanitary and sewer utilities.	
5 Grand Walnut	-	-	779	Combination of Alternatives 1 and 3. Moderate impact among the couplet alignments.	
6 Main Walnut	-	-	810	Combination of Alternatives 2 and 3. Highest utility impact among all alignments.	
7 Main Baltimore	-	-	719	Similar to Alternatives 2 and 4, although not a simple addition of the two alignments. Lowest impact of all coulet alignments.	

Conclusions: Alternative 1 (Grand Boulevard) has the least amount of utility impacts, while Alternative 2 (Main Street) is the second best. Walnut Street will have the highest number of utilities requiring potential modification or relocation, although Baltimore will have a similar number. The couplet alignments with have the highest impact on utilities because the streetcar/enhanced bus will operate on two streets.

Notes/Source: AT&T and Verizon/MCI did not provide documentation of the location of their utility lines, instead providing rankings of their preferred alignments. They did not rank the couplet alignments, primarily focusing on the impacts along individual streets. The size and location of each utility located along an alignment was considered when scoring. The utilities examined include water, sanitary sewer, storm sewer, combinded sanitary and storm sewer, gas, steam/chilled water, electric, and communications. Overall, lower scores correspond to lower impacts due to a smaller amount, smaller lines (pipes), and/or a better location.