

# I-35 Fixed Guideway Corridor Alternatives Analysis Executive Summary

*Prepared for*



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**Goal 1: Enhance Mobility Through and Within the Corridor**

- Expand mobility opportunities for all users moving through and within the I-35 Corridor.
- Address Johnson County’s labor imbalance by providing a viable “reverse commute” option.
- Provide for growth in travel demand.
- Reduce peak period traffic demands on I-35.

**Goal 2: Provide Efficient, High Quality Transit Improvements**

- Create transit service with sufficient capacity to support the needs of the I-35 Corridor.
- Improve operating efficiency.
- Provide high quality modal alternatives.
- Attract new transit riders from single-occupancy vehicles.
- Reinforce the region’s Smart Moves Regional Transit Plan.

**Goal 3: Financial Considerations**

- Provide an efficient transit system that minimizes costs per new transit rider.
- Minimize construction, right-of-way and operating and maintenance costs.
- Leverage federal and state funding.
- Maintain consistency with the Smart Moves Regional Transit Plan and funding assumptions.

**Goal 4: Support Existing and Planned Business, Transportation and Residential Investments**

- Support existing and planned business investments in the I-35 Corridor.
- Support existing and planned public investment in transportation infrastructure.
- Support public and private investment in residential communities.

**Goal 5: Support Effective Land Use and Development Patterns**

- Promote a reliable transit system that allows efficient, effective land use development patterns and facilitates the highest and best use of properties adjacent to transit facilities.
- Encourage economic growth.
- Discourage unplanned growth.
- Enhance quality of life.

**Goal 6: Provide a Cleaner, Safer Environment**

- Support regional goals for: cleaner air and water, more efficient energy use and a healthier environment.
- Provide transit facilities that are safe and secure for transit patrons.

**Goal 7: Provide Service for Transit-dependent Persons**

- Enhance transportation service to low-income persons.
- Enhance transportation service to minority and transit-dependent persons.

## ***Regional Transit Context***

Smart Moves is metropolitan Kansas City's vision for expanded and enhanced public transportation services. It is a regional plan, providing a transit service plan for seven of the metro area counties.

Smart Moves builds on prior transit plans and studies to reflect what residents and businesses, including many Johnson County leaders and transit supporters, indicate they want in a public transit system.

Smart Moves integrates previous regional initiatives by developing detailed service plans for the seven-county area, links them together, and defines the amenities consumers would enjoy and the strategies envisioned to fund the plan. The Smart Moves concept includes a high capacity transit improvement, BRT or commuter rail, in both the I-35 and I-70 corridors.

## ***Public Involvement***

The I-35 Fixed Guideway Alternatives Analysis utilized multiple methods to engage the public and solicit public input. A series of public meetings, focus group sessions, a community survey, and stakeholder interviews were integrated with the project's technical work.

The Goals of the Public Participation Plan were:

- Provide an adequate and equal opportunity for all citizens to affect project planning.
- Collect input from the public proportional to the population affected by the action.
- Expedite the NEPA process by proactively involving the public at strategically chosen project milestones.
- Develop a legally sound and comprehensive Public Participation record.
- Form consensus on the selection of the Locally Preferred Alternative.
- Comply with all laws, regulations, policies, and memoranda of agreement related to public participation in transportation projects.

An Advisory Committee comprised of broad community representation was organized and assigned an active role in providing and securing public input. The committee included representatives from a variety of local governments, groups and organizations that had a vested interest in the project study area. The Advisory Committee met during the course of the project to review technical data and assist in developing conclusions and recommendations.

Public meetings were held at strategic points during the project to provide a two-way dialogue between the public and project management team. The final public meeting was held in July of 2007 to publicize the project's conclusions and recommendations.

In general, the public meeting attendees favored rail transit in the I-35 Corridor, but accepted the conclusion that rail transit was further into the future. There was unanimous agreement that Johnson County should move forward in the immediate future to improve transit in the Corridor. Given the explanation of costs and other implementation issues most attendees agreed with the recommendation to implement a premium express bus service in the Corridor while not ruling out rail transit in the future.

## Transit Alternatives Considered

Transit alternatives for study were identified early in the project based on prior work in the Corridor, input from the Technical and Advisory committees and the public. The initial alternatives included:

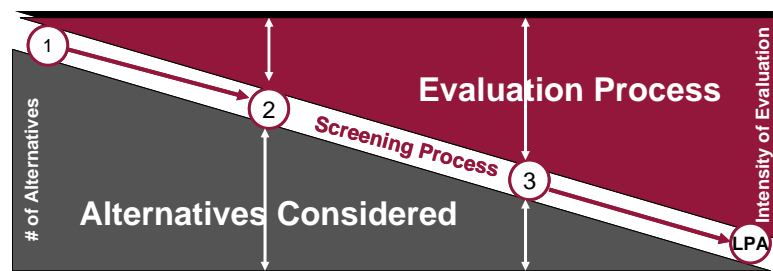
- **No Build Alternative** – a future scenario that incorporates only planned and funded improvements.
- **Transportation Systems Management (TSM) Alternative** – a future scenario that includes low cost capital improvements, sometimes described as “the best you can do with buses.”
- **Arterial Bus Rapid Transit** – a strategy that utilizes exclusive lanes, express operations, special vehicles, and enhanced passenger facilities to create enhanced service on roadways such as Metcalf Avenue and Shawnee Mission Parkway.
- **I-35 Bus Rapid Transit** – a strategy that would follow I-35 and employ various techniques to create a high capacity premium bus service using priority measures to free buses from traffic congestion on I-35 and other roadways.
- **Commuter Rail** - rail passenger service operated on tracks shared with freight traffic, usually oriented to peak period commuters.
- **Light Rail Transit (LRT)** - an electrically powered rail passenger system operated on new tracks used for urban transportation.

## Transit Alternatives Evaluation

The evaluation methodology for the I-35 Alternatives Analysis used a three-step process in which increasingly detailed and comprehensive measures of effectiveness (MOEs) were applied to a decreasing number of modal and alignment alternatives to identify the best potential transportation investment.

The process began with the project goals and objectives, and criteria and measures of effectiveness were identified for each. The initial alternatives were evaluated using a generalized set of criteria. As analysis progressed, certain alternatives were retained by virtue of successfully passing the screening and the number of alternatives decreased. For the next level of screening, the MOEs and the definition of the alternatives became more detailed. Each step in the evaluation process was designed to focus the analysis on progressively fewer alternatives.

The figure to the right illustrates this methodology showing how the number of criteria and level of detail increased as the number of alternatives decreased, and also how the three screenings were conducted in the context of the project development process.



I-35 BRT and Commuter Rail emerged as the alternatives for consideration during the final Tier 3 evaluation. The TSM alternative was also included in the final screening to serve as a baseline for comparison with the build alternatives.

The Tier 3 evaluation focused on Commuter Rail and I-35 BRT. During the course of the evaluation there were several new developments that significantly affected the evaluation and conclusions. These were:

1. Regarding commuter rail, freight rail traffic has continued to increase on the Fort Scott Subdivision of the BNSF paralleling I-35. Much of the growth was the result of increased coal shipments from the Powder River Basin in Wyoming. As a result the rail capacity plan that was developed in 2001 was no longer adequate, and a new plan with a new third main track the entire distance from Union Station to Olathe was prepared.
2. Ridership estimates for commuter rail from the MARC travel demand forecasting model were significantly lower than expected.
3. Continued evaluation of the bus-on-shoulder operating technique, including two site visits to Minneapolis, resulted in the conclusion that this lower cost method of providing priority for express buses would be suitable for I-35.



The result was that the community began to look away from commuter rail and towards a freeway bus rapid transit solution for the I-35 transit needs.

The table below shows costs and ridership estimates for the three alternatives that advanced to Tier 3.

Alternative	Total Capital Cost	Annual Operating Cost	Daily Ridership	
			I-35 Corridor	Total System
Commuter Rail	\$323,205,000	\$6,561,000	776	11,863
I-35 BRT	\$49,188,000	\$5,112,000	4,286	14,873
TSM	\$26,855,000	\$5,285,000	2,293	12,880

The high cost of adding rail capacity required for commuter rail operations resulted in a much higher capital cost for this alternative. In addition, estimated ridership for the commuter rail alternative was low compared to both the TSM and BRT alternatives.

### **Summary and Conclusions**

After several tiers of evaluation, public debate and deliberation among the Advisory Committee and other project stakeholders, commuter rail was determined to not be a viable option because of high cost and a low ridership estimate. BRT using lower cost shoulder running was found to have a significantly higher ridership potential and appeared to be a viable alternative. The BRT Alternative would operate on I-35 and would be express in nature, but would include priority treatment such as the ability to operate on the freeway shoulders, as well as signal priority and

queue jumpers on arterial roadways in Johnson County. Although commuter rail is believed to have advantages over bus-based systems, ridership estimates for the two alternatives clearly show BRT as the better approach, at least for now. Total ridership in the I-35 Corridor for the BRT Alternative was estimated at about 4,300 daily trips versus about 800 daily trips for commuter rail.

Therefore, BRT on I-35 using existing infrastructure was recommended as the preferred alternative. A figure showing the conceptual BRT routes developed as part of the study is shown on the following page.

BRT is a better option to provide enhanced commuter transit service in the I-35 Corridor. This conclusion was supported by the project's Technical Committee and Advisory Committee. However, both committees were adamant that the possibility of rail transit in the Corridor not be ruled out for the future.

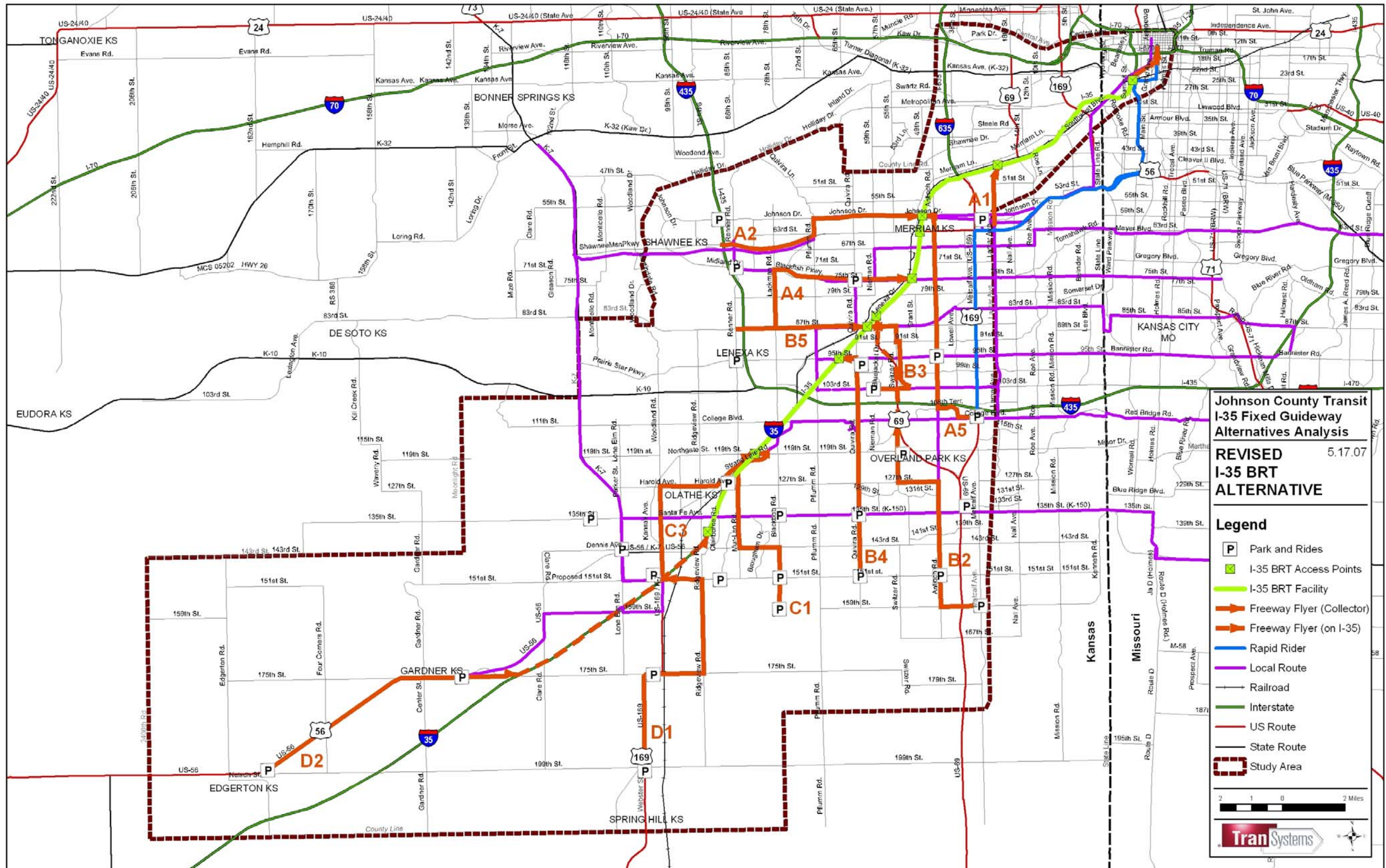
All interested parties agree that it is important to move forward and make significant transit improvements in Johnson County generally, and the I-35 Corridor specifically. Thus this was the focus of the implementation strategy developed during the project.

The key conclusions from the Alternatives Analysis are an important foundation.

1. Because of high cost and low ridership for commuter rail this alternative is clearly not viable. JCT is prepared to set the commuter rail approach aside for now and pursue bus-based approaches.
2. BRT using lower cost bus-on-shoulder operation was favorably accepted by local and state transportation agencies, and has proved to be an effective approach in other metropolitan areas.
3. BRT is estimated to attract a significant level of ridership in the Corridor.
4. The I-35 BRT Alternative is very similar to the TSM Alternative (express bus service). The BRT Alternative may be difficult to qualify for FTA New Starts funding because of a less than clear distinction with the TSM alternative.
5. The scale of the project would qualify it as an FTA Small Start. However, the current fiscal year has "only" \$200 million allocated for this category of projects nationwide.

Another consideration is that the Johnson County Transportation Council recently concluded that intra-County transit is a higher priority than commuter transit to downtown Kansas City. The continued development of Johnson County as an employment center supports this Transportation Council conclusion. There is also interest in the development of an arterial BRT route along Metcalf and Shawnee Mission Parkway serving the Plaza, Midtown and downtown.

Bus Rapid Transit on I-35 Alternative



## ***Project Implementation***

New Start project applications are evaluated by FTA based on a number of criteria including cost effectiveness (relative cost of the improvements compared to ridership and other benefits) and the financial capacity of the governmental entities in the region served to provide the non-Federal share of the capital and operating costs of the project. Whether the land use in the area served meets, or is proposed to meet, the standards of transit oriented development (which may include increasing development densities and changing zoning codes to allow a more compact, mixed use development, restrictions on surface parking, and other changes to the development pattern) is another significant factor in FTA's decision to fund a project. At the end of the Alternatives Analysis phase, FTA evaluates the project and determines whether to allow it to move forward into the Preliminary Engineering and Environmental Analysis phase. In this phase, conceptual design is performed for several alternative alignments and the project enters the NEPA environmental process. Assuming elements of the project remain acceptable at the conclusion of this phase, the project can apply for environmental clearance and FTA may grant a Full-Funding Grant Agreement to allow the project to move into final design and construction.

This process typically requires 5 to 7 years from the inception of the Alternatives Analysis and many projects have been in development for ten years or more. The Federal program under which the New Starts process operates allows for Federal funding of up to 80 percent of the capital cost of a project, with the remaining funding coming from a variety of local and state sources, including in some cases private sources. However, in recent years, the FTA's New Starts process has not received sufficient funds to support the large number of projects under development at this level, and funding grants have typically been more in the range of 50 percent of capital costs. There is currently about five times as many projects in New Starts than there is available funding.

The following is a summary of considerations important to advancing the I-35 project. A project must obtain a "medium" rating under the FTA project justification process at each phase of project development; it does not appear that the project can get a medium rating as it stands now.

- The relatively low ridership may result in a low cost effectiveness rating. The relatively high highway speeds in the future will not translate into user benefits.
- There is not a firm commitment of local capital or operating funding. Smart Moves and regional funding was assumed during the Alternatives Analysis but now cannot be claimed as the funding source because the regional transit funding initiative has not advanced in Kansas.
- Actions must be taken by the communities to adopt land use ordinances, station area plans, and other actions, such as constraints on downtown parking to enhance competitiveness of project. This is not likely to happen in the near future.
- The BRT Alternative will not likely show material improvement over the TSM alternative. Thus the TSM Alternative may be the alternative that warrants most consideration.

## ***Next Steps for Implementation***

- Complete design of the BRT alternative and refine capital and operating cost estimates. System design should include the location and design of one or two park and ride lots.

Ridership estimates show that park and ride access is an important element for increased ridership.

- Prepare a staging plan for transit service improvements showing initial (priority) portions of the system. The staging plan should show how the bus-on-shoulder can be implemented incrementally; enhanced express service can be started without this priority scheme in place.
- Pursue federal funding through FTA's Bus and Bus Facilities capital program.
- Work with the Johnson County Board of County Commissioners and cities to secure adequate funding for local capital match and ongoing operating costs.
- Work with jurisdictions in the county that are redeveloping portions of the community in ways that are consistent with transit supportive development principles.
- Develop downtown routing plans that coordinate with KCATA transfer opportunities.
- Continue coordination with KDOT for I-35 planning and operation.