Executive Summary

Study Purpose

The Fixed Guideway Study (FGS) presents the Oklahoma City Metropolitan Area and the Central Oklahoma Transportation and Parking Authority (COTPA – METRO Transit) a unique opportunity to identify potential transportation solutions that improve connections among Oklahoma City's growth centers, enhance economic development opportunities, improve mobility, expand transportation options, and improve air quality. This project is a continuation of the previous long-range transportation planning efforts and serves as the next step in the Project Implementation Process defined by the Federal Transit Administration (FTA). Examples of the previous plans include the COTPA Long Range Plan, 2025 OCARTS Plan, City of Edmond Comprehensive Plan, City of Norman Comprehensive Plan, Oklahoma City Comprehensive Plan, 1993 Oklahoma City Western Corridor Analysis, 1992 Oklahoma Fixed Guideway Transportation System Study, 1988 Oklahoma City Northeast Rail Feasibility Study, and 1983 Fixed Guideway Mass Transit Feasibility Study. Figure ES.1 indicates the study area for the Fixed Guideway Study.

The twelve month study resulted in the creation of the 2030 System Plan Vision for the Okalahoma Metropolitan area as indicated in Figure ES.2. The System Plan includes Commuter Rail from Edmond to Downtown Oklahoma City to Norman, and Downtown Oklahoma City to Midwest City/Tinker Air Force Base; Bus Rapid Transit along Reno Avenue, Northwest Expressway, 59th Street, and Meridian Avenue; Modern Streetcar serving as a circulator in downtown Oklahoma City; and Enhanced Bus.

Enhanced Bus serves has the backbone to the System Plan and the number one priority for Oklahoma City. Enhanced bus will include a greater service area, and more frequent service. METRO Link and METRO Lift service areas are also increased with the implementation of the Enhanced Bus system

Mission Statement

Recognizing the broader goals of this study, the following mission statement was developed for the FGS, to guide the overall project and, more importantly, articulate the program mission to the public.

> ***The purpose of the study is to identify, evaluate, and recommend a locally preferred public transportation system, including a potential fixed guideway transit system that will strengthen the Oklahoma City area's employment and activity centers. Such an option should satisfy the following objectives:***
>
> - *Increase overall mobility through identifying the best corridors that form the backbone of a long-term fixed guideway transportation network and supports the transit investments that have already been made;*
> - *Provide feasible transportation links that increase access among major activity hubs;*

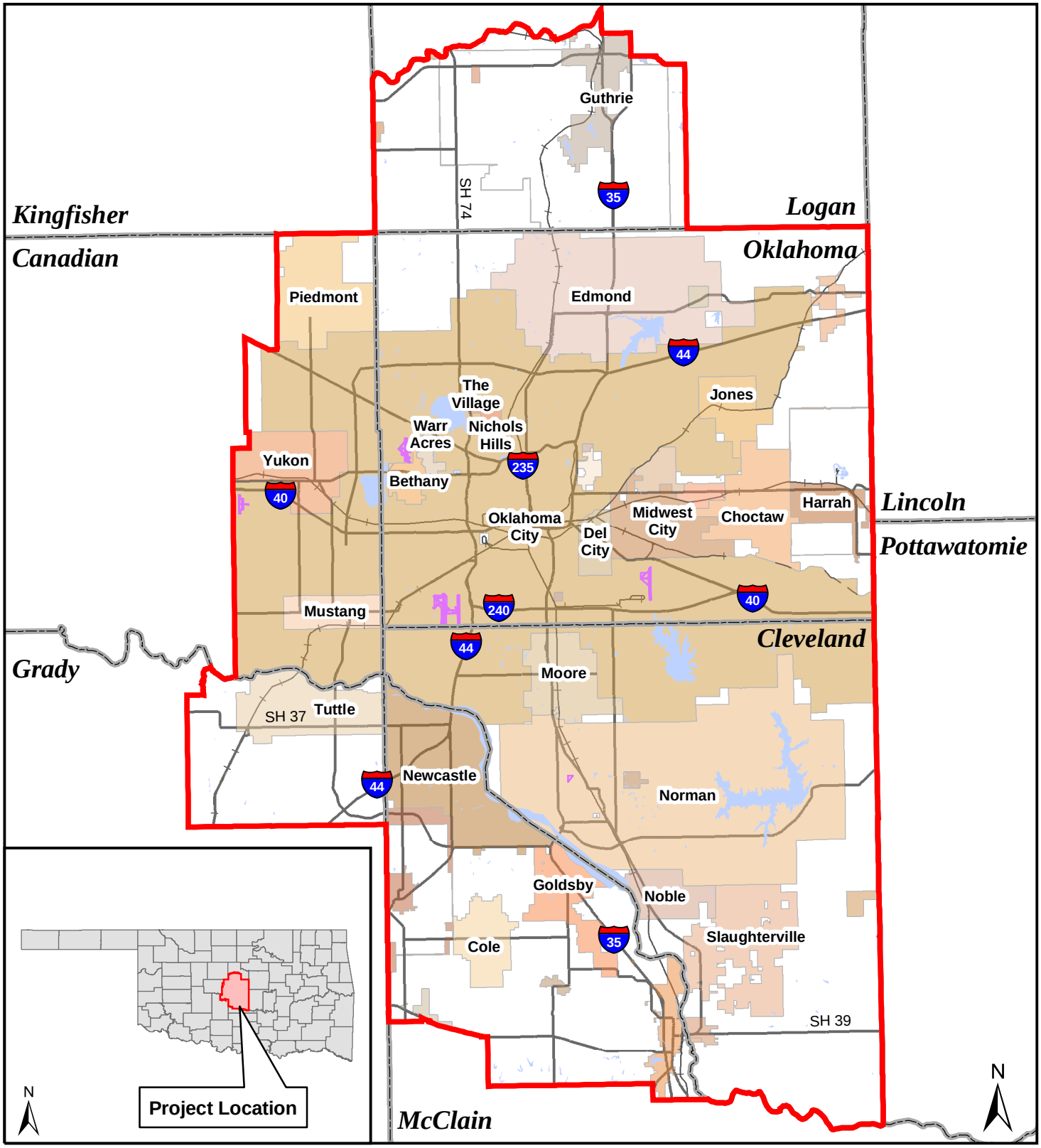
- *Consider economic, environmental, and social impacts to existing and future residences, residential areas, and businesses;*
- *Guide future population and employment growth by leveraging transit-oriented development that supports the investments made in transportation infrastructure;*
- *Suggest realistic cost and funding options, and*
- *Ensure that investments are socially and environmentally sensitive and fiscally responsible, promoting a reduction in pollution and energy consumption while supporting additional growth in the region.*

Guiding Principles

Six guiding principles helped guide the project from start to finish. These included:

- Achieve Regional Consensus
- Enhance Mobility
- Be Fiscally Responsible
- Consider Appropriate Technologies
- Consider Effects on the Corridor
- Economic Development

Central Oklahoma Transportaton & Parking Authority
Fixed Guideway Study



Legend

- ACOG Region
- Airports
- Railroad
- Lakes

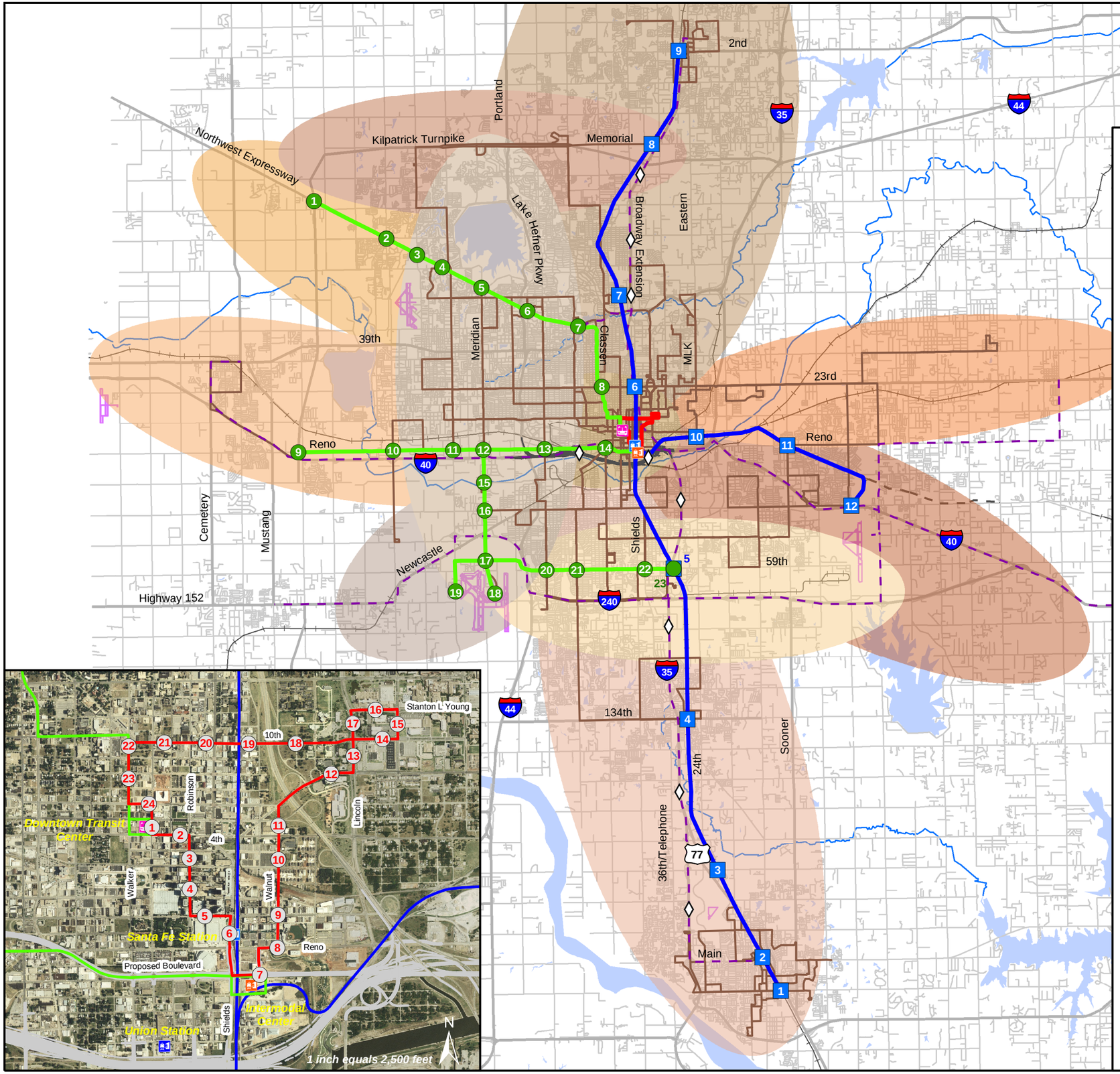
0 5 10 Miles

Figure ES.1
Study Area

METRO Transit
Carter Burgess

Central Oklahoma Transportation & Parking Authority
Fixed Guideway Study

Figure ES.2
2030 System Plan Vision



Fixed Guideway Stations

Bus Rapid Transit Stations

1. Kilpatrick Station
2. Council Station
3. Rockwell Station
4. Brookside Station
5. Meridian Station
6. Integris Baptist
7. Penn Square Mall Station
8. Classen Station
9. Sara Station
10. Council Station
11. MacArthur Station
12. Meridian/Reno Station
13. Fairgrounds Station (Special Event)
14. Western Station
15. 15th Street Station
16. 29th Street Station
17. 54th/Meridian Station
18. Airport Station
19. FAA Station
20. May Station
21. Pennsylvania Station
22. Shields Station
23. 59th Street Intermodal Station

Commuter Rail Stations

1. OU Station (Special Event)
2. Norman Station
3. Tecumseh Station
4. 4th Street Station
5. 59th Street Intermodal Station
6. 23rd Station
7. 63rd Street Station
8. Memorial Station
9. Edmond Station
10. MLK Station
11. Sooner Station
12. Tinker Station

Modern Streetcar Stations

1. METRO Downtown Transit Station
2. Memorial Station
3. Robert S. Kerr Station
4. Park Station
5. Convention Center Station
6. Santa Fe Station
7. Intermodal Station
8. Ballpark Station
9. Sheridan Station
10. Deep Deuce Station
11. Flat Iron Station
12. PHF Station
13. Lincoln Station
14. OU Medical Center South
15. OU Medical Center East
16. OU Medical Center North
17. OU Medical Center West
18. 10th Street Station
19. Oklahoma Station
20. Broadway Station
21. Harvey Station
22. St. Anthony Station
23. Walker Station
24. Federal Station

Legend

- HOV/Managed Lanes
- Bus Rapid Transit Stations
- Commuter Rail Stations
- Modern Streetcar Stations
- Intermodal Center
- Downtown Transit Center
- Santa Fe Station
- Commuter Rail
- Bus Rapid Transit (BRT)
- Modern Streetcar
- Enhanced Bus Service
- Express Bus Service
- Future I-44 Crosstown
- 23rd Corridor
- Airport Corridor
- Central Corridor
- Edmond Corridor
- I-240 Corridor
- Kilpatrick Corridor
- Midwest City/Tinker Corridor
- Norman Corridor
- Northwest Corridor
- Westside I-44 Corridor
- Yukon Corridor

N

0 3 6 Miles

METRO Transit

Carter Burgess

Evaluation Criteria

In determining which fixed guideway technology would be best for the Oklahoma City Metropolitan area a set of evaluation criteria was set. The following are the corridor technology evaluation criteria:

- Ability to Satisfy Operations and Service Levels
- Compatibility with Existing Transit Systems
- Cost Effectiveness
- System Accessibility
- System Flexibility
- Service Frequency
- Environmental Impacts
- Land Use Compatibility
- Availability of Technology

Public Participation and Community Involvement

The active participation of leadership from all effected governmental entities is necessary for a successful project, including COTPA, Oklahoma City and other affected municipalities, Oklahoma County and other affected counties, Association of Central Oklahoma Governments (ACOG), Greater Oklahoma City Chamber of Commerce, business leaders, and community leaders. Public participation and involvement throughout the study ensured that citizens contributed ideas for and will benefit from transportation improvements that add mobility choices and have a positive impact on quality of life. A project website, www.okfgs.org was developed to help inform the public about the project and provide an avenue for public comments.

To help guide the project a Fixed Guideway Study Steering Committee was created. Table ES.1 shows the 30 members of the Steering Committee, the management staff of the City of Oklahoma City, the COTPA Board of Trustees and management staff, and the ACOG management staff:

Project Study Leadership

The Fixed Guideway Study benefited enormously from the guidance, direction, and overall leadership provided by the following entities shown in Tables 1.1 – 1.5. The consultant team expresses their deep appreciation to each of these groups and individuals for their wisdom, experience, and leadership throughout the project.

- Fixed Guideway Study Steering Committee
- City of Oklahoma City Management Staff
- Central Oklahoma Transportation and Parking Authority (COTPA) Board of Trustees & Management Staff
- Association of Central Oklahoma Governments (ACOG) Management Staff

Table ES.1: Fixed Guideway Study Steering Committee

Sam Bowman
Ward 2 City Council

Bernest Cain
Senator, OK Senate District 46

Bill Case
Representative, OK House District 95/Midwest City

Joe Clytus
Oklahoma City Public Schools

Myron Coleman
City County Health

Mick Cornett
Mayor, City of Oklahoma City

John Dugan
Oklahoma City Planning Director

Harold Haralson
Mayor, City of Norman

Lyda Harrell
Traffic Commission Chair

Stan Inman
Chairman, Board of Commissioners

Steve Jones
Representative of Congressman Ernest Istook

Chris Kauffman
COTPA Chairman/The Insurance Center

Klay Kimker
Devon Energy

Hershel Lamirand
OU Medical Center

David Lopez
Downtown Oklahoma City, Inc.

Gary Marrs
Ward 1 City Council

Rick Moore
Municipal Contractors Association

Ford Price
Price Edwards & Co.

Robin Roberts
Greater Oklahoma City Chamber of Commerce

Paula Sanford
Edmond City Council

Dean Schirf
Greater Oklahoma City Chamber of Commerce

Ira Schlezinger
Integris Health

David Streb
Oklahoma Department of Transportation

Richard Tanenbaum
Gardner/Tanenbaum Group

Zach Taylor
ACOG Executive Director

James Thompson
City Manager's Office - Oklahoma City

Amy Underwood
Oklahoma City Beautiful Representative

Mike Voorhees
South Oklahoma City Chamber Representative

John Yoeckel
At-Large Planning Commissioner

Richard Lee
COTPA Vice Chairman

City of Oklahoma City Management Staff

James D. Couch
City Manager

James Thompson
Assistant City Manager

COTPA Board of Trustees

Chris Kauffman
Chairman

Veran Randle

Kay Bickham

Mick Cornett

Bernard L. Semtner, III

James D. Couch

Richard E. Lee
Vice Chairman

Catherine O'Connor

COTPA Management Staff

Rick Cain
COTPA Administrator

Larry Hopper, AICP
Principal Planner

ACOG Management Staff

Zach Taylor
Executive Director

Doug Rex
Assistant to the Executive Director

Holly Massie
Special Programs Officer

The Steering Committee was responsible for the oversight and direction of the study as a whole and was the first point of contact between the Project Team and the communities and agencies participating in the study. The Committee served a review and advocacy role within the communities to garner support for the project and the Committee will have a later role when local, state, and federal funds are needed for the project. Five Steering Committee meetings where held throughout the project duration.

Four rounds of public meetings were held at various locations in the proposed corridors. Meetings were scheduled to avoid major vacation/breaks such as winter break and spring break. Public meetings were conducted at key project milestones to present analysis results for public comment. Prior to each meeting, an open house was held to allow time for attendees to review displays and ask questions. Comment cards were distributed during public meetings to allow for public input on the project. Notification for the public meetings was accomplished by newsletters that were direct-mailed, as well as posted on the project website, www.okfgs.org.

In addition to the Steering Committee and public meetings, interagency work group meetings were conducted. Three interagency work group meetings were held during the project duration. Representatives from METRO Transit, ACOG, ODOT, City of Oklahoma City, Oklahoma County, Downtown Oklahoma City Inc., and the Greater Oklahoma City Chamber of Commerce were in attendance. During the meetings a more technical discussion occurred that related to corridor development, technology alternatives and evaluation, alignments, and forecast model development.

Conceptual Corridor

The ACOG travel demand model along with consultation with the Steering Committee, Technical Advisory committee, METRO Transit, ACOG, the City of Oklahoma City and public input were utilized to determine major travel patterns within the Oklahoma City Metropolitan area and to develop a range of conceptual corridors. The analysis and input resulted in eleven concept corridors to be analyzed. The corridors consist of a central corridor encompassing downtown, seven radial corridors, and three cross-town corridors.

Existing Transit Services

METRO Transit is a division of the Central Oklahoma Transportation and Parking Authority (COTPA). COTPA, a public trust administered by the City of Oklahoma City, is responsible for providing downtown parking alternatives and safe, efficient and convenient public transportation to the citizens of the greater Oklahoma City metropolitan area.

Today, METRO Transit provides fixed and express routes, paratransit, shared taxi and other transportation programs for citizens with disabilities within a 485 square mile area, including the cities of Oklahoma City, Edmond and Norman. Service hours are Monday – Friday 5:30 am – 7:30 pm and Saturday 6:30 am – 5:30 pm. There is no Sunday service. Services are funded through a combination of federal, state and local revenues and fare receipts.

Travel Demand and Trip Making Patterns

Travel demand forecasting is a tool available to use in choosing among different transportation improvement alternatives. Travel demand forecasting is a computer modeling process used to predict travel behavior and the resulting demand for future time frames, based on assumptions dealing with land use, the trip making patterns of travelers, and the nature of the area's transportation system. Use of a travel forecasting model can help to answer questions such as:

- How many trips will be made in the future?
- Which portions of the area wide transportation system will become congested in the future?
- How much ridership will a new transportation service attract?

The Association of Central Oklahoma Governments (ACOG) travel demand model was used to forecast travel demand for the alternative future scenarios considered in the Fixed Guideway Study. The ACOG Travel Demand Model is a network-based computer model utilizing TRANPLAN software. Like most travel demand models in use throughout the United States, the ACOG travel demand model utilizes a four-step process consisting of: trip generation, trip distribution, mode choice and travel assignment.

Land use data (population, employment, etc.) are used as basic input data to predict the amount and type of activity in a region. This demographic information is available from several sources. The U.S. Census conducted every ten years provides a detailed population profile of the metropolitan area. Existing employment statistics are available from the State Labor Department. ACOG develops land use forecasts, in cooperation with the Oklahoma Department of Transportation and the local communities.

Transit Technology Alternatives

Nine transit technologies were evaluated to identify which technology would best fit the Oklahoma City Metropolitan area. The transit technologies evaluated are conventional bus service, high occupancy vehicle (HOV) lanes, bus rapid transit (BRT), light rail transit (LRT), historic streetcar, modern streetcar, commuter rail, heavy rail, and monorail. In determining which fixed guideway technology would be best for the region the evaluation criteria previously mentioned was used. Table ES.2 presents a summary of the evaluation for each transit technology.

Table ES.2
Technology Ratings

Evaluation Criteria	Bus	HOV	BRT	LRT	Historic Streetcar	Modern Streetcar	Commuter Rail	Heavy Rail	Monorail
Ability to Satisfy Operations and Service Levels	2	3	5	5	4	5	5	4	4
Compatibility with Existing Transit System	5	3	5	3	3	3	4	2	3
Cost Effectiveness	4	4	4	3	3	3	3	1	1
System Accessibility	3	2	4	3	2	3	2	2	1
System Flexibility	5	4	4	4	4	2	3	1	1
Service Frequency	4	4	4	5	4	5	3	4	4
Environmental Impacts	3	2	3	5	3	4	5	3	1
Land Use Compatibility	3	2	3	5	5	5	3	2	1
Availability of Technology	5	3	4	5	4	5	5	2	1
Total	34	27	36	38	32	35	33	21	17

Technologies that received a score of 25 or higher in the nine categories are recommended for further consideration. Therefore, conventional bus service, high occupancy vehicle lanes, bus rapid transit, light rail transit, historic streetcar, modern streetcar, and commuter rail are the selected transit technology alternatives, which will be carried over to the next level of analysis. During the next level of analysis these technologies will be further analyzed to determine which technology would be best for each corridor.

Potential Alignments

In development of the System Plan "Vision" for the Oklahoma City Metropolitan area, several alternative alignments were considered for each of the eleven corridors. Table ES.3 indicates the transit technologies considered for each corridor.

Table ES.3
Transit Technologies

Corridor	Transit Technology Options
23rd Corridor	Enhanced Bus, Express Bus
Airport Corridor	Enhanced Bus, Bus Rapid Transit, Modern Streetcar
Central Corridor	Enhanced Bus, Bus Rapid Transit, Commuter Rail, Modern Streetcar
Edmond Corridor	Enhanced Bus, Bus Rapid Transit, Commuter Rail, High Occupancy Vehicle Lanes
I-240 Corridor	Enhanced Bus, Bus Rapid Transit
Kilpatrick Corridor	Enhanced Bus, Bus Rapid Transit
Midwest City/Tinker Corridor	Enhanced Bus, Bus Rapid Transit, Commuter Rail
Norman Corridor	Enhanced Bus, Bus Rapid Transit, Commuter Rail, High Occupancy Vehicle Lanes
Northwest Corridor	Enhanced Bus, Bus Rapid Transit, Modern Streetcar
Westside I-44 Corridor	Enhanced Bus, Bus Rapid Transit
Yukon Corridor	Enhanced Bus, Bus Rapid Transit, Commuter Rail, Modern Streetcar

Travel Demand Analysis

The Association of Central Oklahoma Governments (ACOG) provided its regional travel demand model for use in preparing the travel demand analysis for the Fixed Guideway Study. ACOG is the Metropolitan Planning Organization responsible for regional transportation planning for the Central Oklahoma region and the Oklahoma City Metropolitan Area. The travel demand model was used to develop the ridership forecasts for the Fixed Guideway study. The modeling process and resulting ridership forecasts are summarized in Chapters 6 and 7. A detailed description of the travel demand analysis is provided in Appendix C.

Project Alternatives

Four unique project alternatives for the year 2030 were analyzed in the course of the FGS. These included:

- **No Action Plan** – applies the current COTPA operating plan to the future year in order to assess the costs, impacts, and ridership of a "do nothing" approach.
- **Enhanced Bus Plan** – attempts to meet future travel demand through a system of local, express, and feeder busses providing a level of service more than two times the service level that COTPA currently operates. A downtown streetcar is included.
- **Bus Rapid Transit (BRT) Plan** – expands from the enhanced bus plan to add a network of bus rapid transit routes along the major arterial corridors of the region.
- **Commuter Rail (CRT) Plan** – modifies the BRT plan by replacing bus rapid transit service with commuter rail service along the north-south (Edmond to Norman) and east-west (Yukon to Midwest City) corridors.

No Action Alternative – there is currently no dedicated source of funding in place to support transit improvements, such as new routes, increased frequencies, or greater coverages. Thus, for planning purposes in this study, the current system of routes with minimal adjustments is appropriately considered the 2030 No Action Plan. The No Action network operates throughout the Oklahoma City Metropolitan area and includes 22 local bus routes, three express bus routes, six rubber-tire trolley routes, and six CART (Cleveland Area Rapid Transit) bus routes operating within the City of Norman.

Enhanced Bus Alternative – the Enhanced Bus scenario seeks to build on the No Action Plan by improving local and express bus service, adding a downtown streetcar, and creating a commuter bus network to Tinker Air Force Base. The Enhanced Bus scenario increases the served area for METRO Link and METRO Lift services. This plan also serves as a background network for the bus rapid transit and commuter rail alternatives.

Bus Rapid Transit (BRT) Alternative – the BRT alternative modifies the Enhanced Bus plan by adding a layer of BRT service and adjusting other bus service accordingly. A network of eleven BRT routes across the region operated in designated BRT lanes along arterial roads with limited stops (roughly every mile), upgraded transit facilities, and park and ride availability where feasible. All BRT routes operate at 30 minute frequencies in the peak, and most drop to hourly service in the off-peak period.

Commuter Rail Alternative – the Commuter Rail Plan adds yet another mode of transit service onto the BRT alternative. Local bus service is adjusted to interact with two commuter rail lines: a north/south route operating from Edmond to Norman and an east/west route operating from Midwest City/Tinker AFB to Yukon. The commuter rail service seeks to provide peak-oriented service from outer suburban communities into downtown Oklahoma City along existing freight and/or passenger rail lines. Service is bi-directional with 30 minute peak and 60 minute off-peak frequencies. Double tracking is assumed along the entire north/south corridor, while the east/west corridor assumes primarily single-track segments.

Alternatives Evaluation

Each of the fixed guideway alternatives were compared based upon a defined set of guidelines (described below). Only alternatives that met the defined guidelines were considered to be feasible to carry forward to the System Plan.

Guidelines were defined to reflect corridor and regional transportation needs and likely fiscal constraints. Both qualitative and quantitative issues were considered. Major guidelines related to:

1. Ability to satisfy operations and service levels;
2. Compatibility with existing regional transit systems;
3. Cost effectiveness;
4. System accessibility;
5. System flexibility;
6. Service frequency;
7. Environmental impacts;
8. Land use compatibility; and
9. Availability of technology.

The following is the results of the alternatives evaluation.

Enhanced Bus Evaluation

Ability to satisfy operations and service levels	2030 forecast of 5.2 million annual riders
Compatibility with existing regional transit systems	Yes – Same as existing bus and paratransit service
Cost Effectiveness	$0.56 annualized capital cost per annualized rider
System Accessibility	Bus stops every 2 blocks along fixed routes
System Flexibility	Flexible routes and headways subject to funding constraints
Service Frequency	Typically 5 to 30 minute headways
Environmental Impacts	Low – confined to existing streets
Land Use Compatibility	Same as existing street system
Availability of Technology	Currently in production
APPLICABILITY TO CORRIDORS	**All corridors are potential areas for enhanced bus service**

HOV/Managed Lanes Evaluation

Ability to satisfy operations and service levels	2030 user forecast is 5.0 million annual person trips
Compatibility with existing regional transit systems	Yes – Requires Feeder Bus Service
Cost Effectiveness	$5.79 annualized capital cost per rider
System Accessibility	Park-and-Rides in outlying areas with bus lanes connecting to HOV lanes
System Flexibility	Expandable by extending HOV lanes
Service Frequency	Not Applicable
Environmental Impacts	Low – confined to existing freeways and added ROW for park-and-ride facilities

Land Use Compatibility	Same as existing freeway systems
Availability of Technology	Currently in use
APPLICABILITY TO CORRIDORS	**Applicable along Broadway Extension from NW 36th to Kilpatrick Turnpike, IH 35 south of I-40 to Norman, the new Crosstown Expressway**

Bus Rapid Transit (BRT) Evaluation

Ability to satisfy operations and service levels	2030 forecast of 1.9 million annual riders with Enhanced Bus; 410,000 riders with Commuter Rail
Compatibility with existing regional transit systems	Yes – Requires feeder bus service
Cost Effectiveness	$2.39 annualized capital cost per rider with Enhanced Bus; $7.85 with Commuter Rail
System Accessibility	Platform with canopy, spacing ¼ to 2 miles
System Flexibility	Expandable by adding buses and extended BRT lanes
Service Frequency	Typically 5 to 20 minute headways
Environmental Impacts	Low to high depending on shared or separate right-of-way
Land Use Compatibility	Compatible depending on design, with transit oriented development potential
Availability of Technology	Currently in production
APPLICABILITY TO CORRIDORS	**Applicable in high demand corridors where light rail or commuter rail is not yet feasible**

Commuter Rail Evaluation

Ability to satisfy operations and service levels	2030 forecast of 700,000 riders for the North/South corridor; 280,000 for East/West corridor
Compatibility with existing regional transit systems	Requires feeder bus service and additional support facilities
Cost Effectiveness	$21.19 annualized capital cost per rider for North/South corridor; $31.03 for East/West corridor
System Accessibility	Platform with canopy, station spacing 3 to 5 miles apart
System Flexibility	Expandable by adding cars and extending lines
Service Frequency	Typically 30 to 60 minute headways
Environmental Impacts	Low – confined to existing freight rail corridors
Land Use Compatibility	Same as existing railroad corridor, with transit orientated development potential around station locations
Availability of Technology	Currently in production
APPLICABILITY TO CORRIDORS	**Applicable in high demand corridors with existing freight railroad tracts**

Light Rail Transit (LRT) Evaluation

Ability to satisfy operations and service levels	2030 forecast of 1.3 million annual riders for Edmond-OKC-Norman Route
Compatibility with existing regional transit systems	Required feeder bus service and additional support facilities
Cost Effectiveness	$108 annualized capital cost per rider
System Accessibility	Platform with canopies, spacing ½ to 2 miles, commuter parking
System Flexibility	Expandable by adding rail cars and extending lines
Service Frequency	Typically 10 to 20 minute headways

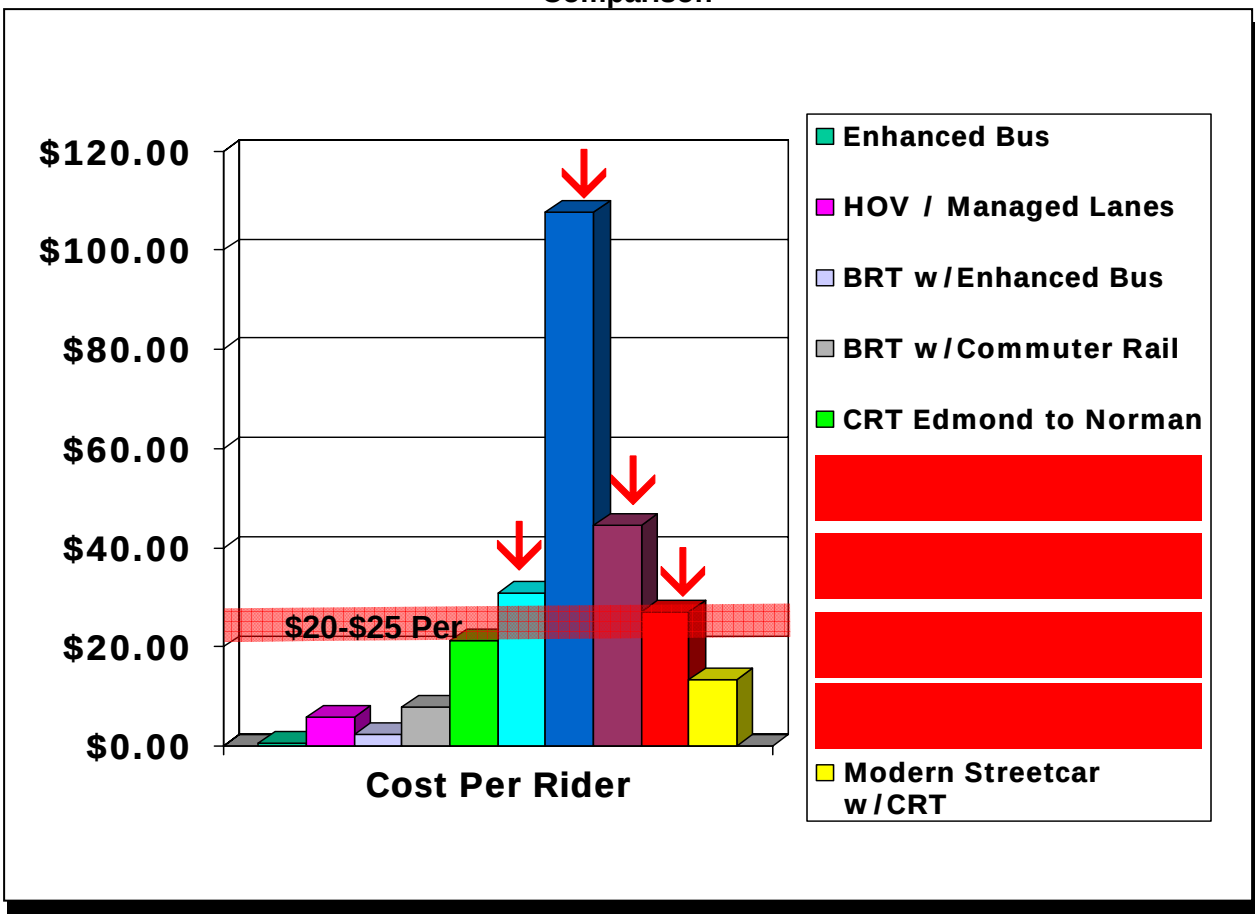
Environmental Impacts	Low to high depending on shared or separate right-of-way
Land Use Compatibility	Proven compatibility for urban land uses and strong potential for transit oriented development
Availability of Technology	Currently in production
APPLICABILITY TO CORRIDORS	**Applicable in high demand, heavily urbanized corridors**

Modern Streetcar Evaluation

Ability to satisfy operations and service levels	2030 forecast of 500,000 annual riders with CRT; 250,000 with BRT; 151,000 with enhanced bus
Compatibility with existing regional transit systems	Requires feeder bus service and additional support facilities
Cost Effectiveness	$13.53 annualized capital cost per rider when combined with CRT; $27.11 with BRT; $44.54 with Enhanced Bus
System Accessibility	Platform with canopies, spacing ½ to 2 miles
System Flexibility	Expandable by adding cars and extending lines
Service Frequency	Typically 10 to 20 minute headways
Environmental Impacts	Low to high depending on shared or separate right-of-way
Land Use Compatibility	Proven compatibility for urban land uses and good potential for transit oriented development
Availability of Technology	Currently in production
APPLICABILITY TO CORRIDORS	**Applicable in high demand, heavily urbanized corridors**

For the Federal Transit Administration (FTA) to consider a project for federal funding it should be under the $25 annualized cost per rider threshold. Figure ES.3 indicates those projects that are within that threshold and were carried forward for further analysis. The alternatives highlighted in red were not carried forward.

Figure ES.3
Cost per Rider
Comparison



Environmental Fatal Flaw Analysis

To understand the environmental impacts of establishing fixed guideway transit service in the Oklahoma City Metropolitan area, a generalized "fatal flaw" environmental screening was conducted. The environmental screening determined that there could be potential minor negative impacts, but none were so acute as to prevent the construction of fixed guideway transit alternatives in the identified corridors. A separate environmental assessment will be required for the next phase of implementation to determine the specific impact of any proposed construction on the natural and human environment.

Cost-Effectiveness Evaluation of Alternatives

In evaluating the possible alternative for the System plan a cost-effectiveness evaluation was done on each alternative. Each alternative was modeled in ACOG's travel demand model to determine annualized riders for each route. An annualized capital cost was calculated for each route then compared to the annualized riders to determine the annual cost per annual rider. This measure is approved by the FTA to determine if an alternative is cost effective and could potentially qualify for federal funding. The desirable range set by FTA for an effective alternative is between $20 to $25 per rider or less. Each alternative was tested individually and ten combined into the system plan and tested again as part of the overall system.

Selection of Locally Preferred Alternatives

During the twelve month long study the consultant team along with METRO Transit staff worked with the public, surround cities, ODOT, and ACOG to develop a series of fixed guideway alternatives for the Oklahoma City Metropolitan area. These alternatives were taken to the Fixed Guideway Steering Committee for review and comment. Through this process along with the technical analysis performed a locally preferred alternative was developed.

System Plan

The system plan seeks to combine the most successful elements of the various alternatives, enhanced bus, bus rapid transit (BRT), commuter rail, and modern streetcar to create the most effective solution for the transit riders in the COTPA region. The System Plan includes three commuter rail lines, three BRT lines, a downtown streetcar, enhanced bus service, and Tinker commuter bus as shown previously in Figure ES.2. The plan also incorporates improved connectivity between transit modes throughout the region, most notably a new downtown intermodal transit station where commuter rail, BRT, downtown streetcar and local service combine within the proposed IH 40 redevelopment corridor. The following describes each element of the System Plan.

- **Commuter Rail** – Commuter Rail in the System Plan consists of three segments: the Edmond corridor, the Norman corridor, and the Midwest City/Tinker corridor. The three commuter rail segments will converge at the new Intermodal Station within the proposed IH 40 redevelopment area.
- **Bus Rapid Transit (BRT)** – Three BRT routes are proposed in the System Plan: Northwest Expressway, Reno Avenue, and SW 59th Street. Like commuter rail, the BRT routes seek to interact with the rest of the transit system.
- **Downtown Streetcar** – The downtown streetcar serves as a circulator providing frequent, direct service between the Downtown Transit Center, the Oklahoma City CBD, Cox Convention Center, Bricktown, the University of Oklahoma Medical Center, the Intermodal Station, and St. Anthony's Medical Plaza. The streetcar operates bi-directionally at a fifteen minute frequency all day.
- **Enhanced Bus** – Enhanced bus routes in the System Plan achieve the goals of: frequent service, effective bus service connecting transit riders throughout the COTPA area to other transit modes and ultimately to employment, shopping, and other destinations across the region. Enhanced bus service also includes increased service

areas for METRO Link and METRO Lift services. Applicable routes make connections to BRT and commuter rail stations.

- **HOV** – Within the System Plan HOV lanes are proposed along Broadway Extension from the Kilpatrick Turnpike to IH 44, along the new IH 40, and along IH 35 south from IH 40 to Robinson Street in Norman.

Capital Costs

A summary of capital costs for each component of the System Plan are included in Table ES.4.

Table ES.4
System Plan Capital Costs and Ridership Forecasts

Enhanced Bus Service

Enhanced Bus Service	Revenue (millions)	Arterial Streets ($0.0 M/mi.)	Annualized Cost	2030 Daily Person Trips	Annualized Riders (285 days)	CEI Cost Per Annualized Rider
Enhanced METRO Transit Bus Service	9,400,000	$31.77	$2.88	18,157	5,174,745	$0.56

Notes: Enhanced bus service includes increased service hours, and vehicles.

High Occupancy Vehicle (HOV) Lanes

HOV Lane	Length (miles)	HOV Cost Freeway/ Expressway	Annualized Cost	2030 Daily Person Trips	Annualized Riders (285 days)	CEI Cost Per Annualized Rider
Broadway Extension from IH 44 to Memorial Road	6.00	$45.00	$4.23	17,625	5,023,125	$0.84
IH 35 from IH 40 (existing) to Robinson Street	16.00	$240.00	$22.56	17,135	4,883,475	$4.62
IH 40 Crosstown from May Avenue to IH 35	4.00	$30.00	$2.82	4,689	1,336,365	$2.11

Notes: For bus-HOV facilities capital cost estimates

Bus Rapid Transit (BRT)

BRT Alignment	Length (miles)	Arterial Streets ($1.0 M/mi.)	Annualized Cost	2030 Daily Person Trips	Annualized Riders (285 days)	CEI Cost Per Annualized Rider
Northwest Expressway – to Downtown Bus Transfer Center	14.45	$14.45	$1.36	527	150,195	$9.04
Reno Avenue – Yukon to OKC Intermodal Center	11.59	$11.59	$1.09	171	48,735	$22.35
SW 59th – FAA Center	8.37	$8.37	$0.79	504	143.640	$5.48

to Crossroads Intermodal Center						
Meridian Avenue – Reno to Airport	4.79	$4.79	$0.45	117	33,345	$13.50
TOTAL BRT System Plan	39.20	$39.20	$3.68	1,319	375,915	$9.80

Notes: BRT costs include roadway bus lanes, and station costs

Commuter Rail Transit (CRT)

CRT Alignment	Length (miles)	Existing Rail (millions)	Annualized Cost	2030 Daily Person Trips	Annualized Riders (285 days)	CEI Cost Per Annualized Rider
OU Stadium to OKC Intermodal Center – Double Track	18.76	$93.25	$7.63	1,090	310,650	$24.57
Edmond to OKC Intermodal Center – Double Track	14.17	$91.33	$7.65	486	138,510	$55.22
Total – OU Stadium to Edmond – Double Track	*32.93*	*$184.58*	*$15.28*	*1,576*	*449,160*	*$34.02*
MWC to OKC Intermodal Center – Single Track	9.45	$49.54	$4.21	352	100,320	$41.99
Total – Commuter Rail System Plan	51.83	$234.12	$19.49	1,928	549,480	$35.48

Notes: CRT costs include site work & urban design, track work, structures, stations, signal system, utilities, and crossing protection.
OU to Edmond includes adding continuous second track. Intermodal Center to Tinker utilizes single track. ROW costs are excluded. Drive access is limited to a 5-minute drive-to-station time.

Modern Streetcar

Modern Streetcar Alignment	Length (miles)	Arterial Streets ($16.7 M/mi.)	Annualized Cost	2030 Daily Person Trips	Annualized Riders (285 days)	CEI Cost Per Annualized Rider
Downtown OKC Streetcar with Commuter Rail	4.98	$83.20	$6.74	1,184	337,440	$19.97

Notes: Modern Streetcar costs include stations, track work, electrification, utility adjustments, and street modifications. ROW costs are excluded. Drive access is limited to a 5- minute drive-to-station time.

Operating Plans

An operating statistics model was developed to forecast the annual vehicle miles, annual vehicle hours, and peak vehicles by transit mode for enhanced bus, bus rapid transit, commuter rail, and the downtown streetcar. This model considers route length, route time (including layover), peak and off-peak period frequencies, and service span to derive daily statistics. For bus statistics, an annualized factor derived from actual data is applied to scale miles and hours up to an annual level. For rail statistics, annual data is calculated by considering the number of weekdays, Saturdays, and Sundays for which service is provided. Tables ES.5 through ES.7 list the operating statistics for each transit mode in the System Plan.

Table ES.5
COTPA 2030 Bus Operating Statistics

Alternative	No Action	Enhanced Bus	BRT	Commuter Rail	System Plan
Peak Buses	79	161	152	135	145
Annual Revenue Hours	250,229	595,059	585,176	527,868	577,989
Annual Revenue Miles	3,703,721	9,471,228	9,947,461	8,846,713	9,370,805

Table ES.6
COTPA 2030 Downtown Streetcar Operating Statistics

	No Action	Enhance Bus	BRT	Commuter Rail	System Plan
Peak Trains/Cars	n/a	5	5	5	5
Annual Revenue Train- and Car-Hours	n/a	27,725	27,725	27,725	27,725
Annual Revenue Train- and Car-Miles	n/a	219,138	219,138	219,138	219,138

Table ES.7
COTPA 2030 Commuter Rail Operating Statistics

	No Action	Enhanced Bus	BRT	Commuter Rail	System Plan
Peak Trains	n/a	n/a	n/a	7	7
Annual Revenue Train-Hours	n/a	n/a	n/a	24,763	23,520
Annual Revenue Train-Miles	n/a	n/a	n/a	778,958	623,810
Peak Cars	n/a	n/a	n/a	11	8
Annual Revenue Car-Hours	n/a	n/a	n/a	30,883	25,050
Annual Revenue Car-Miles	n/a	n/a	n/a	973,084	645,826

Ridership Forecasts

Year 2030 ridership forecasts were completed for five scenarios including:

- No Action,
- Enhanced Bus,
- Bus Rapid Transit (BRT),
- Commuter Rail Transit, and
- System Plan

Table ES.8 offers an aggregate or system-wide summary of the results. The No Action scenario includes some minor changes to the existing transit system that reflect service changes implemented by COTPA after the year 2000. The Enhanced Bus scenario adds considerable service as evidenced by increases in the transit system revenue miles and hours.

Fixed guideway scenarios are the Bus Rapid Transit (BRT), Commuter Rail, and System Plan, all of which are incorporated elements of the Enhanced Bus scenario. The commuter rail and System Plan scenarios incorporate some BRT elements. In addition, all scenarios except the No Action include a downtown streetcar option.

Table ES.8
System-Wide Summary of Ridership Forecasts and Highway Assignments

Modeled Scenarios	Transit Ridership				Transit System		Highway Assignments		
	Person Trips	Mode Share	Boardings	Passenger Miles	Revenue Miles	Revenue Hours	VMT	VHT	Congested Speed
No Action	9,954	0.20%	12,987	49,014	897	13,275	43.94	1.14	38.48
Enhanced Bus	18.157	0.37%	26,348	127,898	2,069	32,243	43.82	1.14	35.54
Change from No Action	8,203		13,361	78,884	1,172	18,968	-0.12	0.00	0.06
% Change from No Action	82%		103%	161%	131%	143%	-0.3%	-0.4%	0.2%
Bus Rapid Transit	24,337	0.49%	36,720	194,341	2,036	33,830	43.73	1.13	38.56
Change from Enhanced Bus	6,180		10,372	66,443	(33)	1,587	-0.09	0.00	0.02
% Change from Enhanced Bus	34%		39%	52%	-2%	5%	3.0%	0.2%	-4.1%
Commuter Rail	23,469	0.48%	36,435	189,269	1,937	32,693	43.74	1.14	38.54
Change from Enhanced Bus	5,312		10,087	61,371	(132)	451	-0.08	0.00	0.00
% Change from Enhanced Bus	29%		38%	48%	-6%	1%	-0.2%	-0.2%	0.0%
System Plan	22,311	0.45%	33,085	177,551	2,095	34,051	43.85	1.14	38.50
Change from Enhanced Bus	4,154		6,737	49,653	26	1,808	0.03	0.00	-0.04
% Change from Enhanced Bus	23%		26%	39%	1%	6%	15%	0.7%	-10.5%

Notes:
1. OCARTS model result
2. Assumptions for system revenue miles and hours appear in the appendices.
3. OCARTS model results
   Vehicle miles of travel (VMT) and Vehicle hours of travel (VHT) are in millions
4. Assumes downtown streetcar in all but enhanced bus

Ridership by Transit Mode and Trip Purpose

Table ES.9 summarizes daily boardings for each scenario by transit mode. In the No Action scenario, boardings on local buses and trolleys total 12,739 per day or 98% of the system. Transit assignments for Enhanced Bus scenario registered 21,749 roughly 8,000 more than the No Action. Local bus and trolley boardings stay at roughly the same level as the Enhanced Bus for the BRT, commuter rail, and System Plan scenarios, however, they vary as a percentage of the boardings for the total system. Daily boardings for the downtown streetcar are lowest in the Enhanced Bus scenario at 1,266 per day and more than double in the BRT, commuter rail and System Plan scenarios. This reflects the circulator-type role the streetcar plays in the fixed guideway concepts, where passengers arrive at the downtown and then transfer to get to their final destinations.

Table ES.9
System-Wide Summary of Transit Forecast by Transit Mode

Transit Mode		No Action		Enhanced Bus		Bus Rapid Transit		Commuter Rail		System Plan	
		Daily Boardings	% of Total	Daily Boardings	% of Total	Daily Boardings	% of Total	Daily Boardings	% of Total	Daily Boardings	% of Total
BRT	Local Bus & Trolleys	12,739	98%	21,749	83%	19,741	54%	21,834	60%	21,245	64%
	Express Bus	248	2%	3,333	13%	906	2%	1,451	4%	627	2%
	BRT					13,124	36%	3,934	11%	2,636	8%
Subtotal Bus		12,987	100%	25,082	95%	33,771	92%	27,219	75%	24,508	74%
Rail Transit	Downtown Streetcar			1,266	5%	2,949	8%	3,071	8%	2,666	8%
	Commuter Rail							6,145	17%	5,911	18%
Subtotal Rail				1,266	5%	2,949	8%	9,216	25%	8,577	26%
Total System Boardings		12,987		26,348		36,720		36,435		33,085	

Table ES.10 summarizes system-wide ridership in terms of work and non-work trip purposes. In the No Action scenario, linked person trips were split 50/50 between home-based work and non-work trip purposes. Under the Enhanced Bus scenario service is augmented considerable and particularly in the peak periods. Thus, the estimate of persons using transit each day to get to work becomes 11,416 or 63% of all daily transit ridership, while non-work constitutes some 37%. In general, a 60/40 split between the work and non-work trip purposes is common to all of the build scenarios.

Table ES.10
System-Wide Transit Ridership by Trip Purpose

Modeled Scenarios	Linked Person Trips			Daily Boardings		
	Work	Non-Work	Total	Work	Non-Work	Total
No Action	5,018	4,936	9,954	6,950	6,037	12,987
% Work or Non-Work	50%	50%	100%	54%	46%	100%
Enhanced Bus	11,416	6,741	18,157	17,508	8,840	26,348
% Work or Non-Work	63%	37%	100%	64%	36%	100%
Change from Enhanced Bus	3,407	2,773	6,180	5,846	4,526	10,372
% Change from Enhanced Bus	30%	41%	34%	33%	51%	39%
Commuter Rail	14,020	9,488	22,311	19,959	13,126	33,085
% Work or Non-Work	60%	40%	100%	62%	38%	100%
Change from Enhanced Bus	2,604	2,708	5,312	5,245	4,842	10,087
% Change from Enhanced Bus	23%	40%	29%	30%	55%	38%
System Plan	12,823	9,488	22,311	19,959	13,126	33,085
% Work or Non-Work	57%	43%	100%	60%	40%	100%
Change from Enhanced Bus	1,407	2,747	4,154	2,451	4,286	6,737
% Change from Enhanced Bus	12%	41%	23%	14%	48%	26%

Transit Modes of Access and Egress

Table ES.11 summarizes boarding modes of access or egress for each of the modeled scenarios. It should be noted that these results are presented in a *production-attraction* (PA) format as opposed to an *origin-destination* (OD) form. To explain, it is common in travel demand models to assume that persons who travel by transit take the same route when they leave to go somewhere and also upon their return. This assumption was used in setting the OCARTS model and is often the case; the assumption is largely a matter of convenience in terms of model processing and network coding.

Table ES.11
System-Wide Daily Modes of Access or Egress (PA form)

Modeled Scenarios	Work				Non-Work			
	Mode-of-Access/Egress			Total Boardings/ Alighting	Mode-of-Access/Egress			Total Boarding/ Alighting
	Walk	Drive	Transfer		Walk	Drive	Transfer	
No Action	5,018	0	1,932	6,950	4,936	0	1,101	6,037
% of Total Boarding	72%	0%	28%	100%	82%	0%	18%	100%
Enhanced Bus	9,454	1,962	6,092	17,508	6,741	0	2,099	8,840
% of Total Boarding	54%	11%	35%	100%	76%	0%	24%	100%
Bus Rapid Transit	8,850	5,973	7,930	22,753	6,770	2,744	3,852	13,366
% of Total Boarding	39%	26%	35%	100%	51%	21%	29%	100%
Commuter Rail	8,329	5,691	8,733	22,753	6,972	2,477	4,233	13,682
% of Total Boarding	37%	25%	38%	100%	51%	18%	31%	100%
System Plan	8,732	4,091	7,136	19,959	7,142	2,346	3,638	13,126
% of Total Boarding	44%	20%	36%	100%	54%	18%	28%	100%

Operating and Maintenance Costs

Operating and maintenance (O&M) costs are estimated based upon the operating and maintenance costs experience of COTPA and other transit systems around the country. Operating costs are those costs incurred in providing revenue service. The following are estimated O&M cost for each of the System Plan components.

Enhanced Bus

Enhanced bus O&M costs are estimated based upon actual 2005 COTPA bus O&M costs per unit as detailed in Table ES.12. The current operating cost data were provided by COTPA. The future operating costs are estimated by multiplying the projected number of units (passenger miles or revenue miles) by the cost per unit, and then each subtotal is summed to obtain a total estimated O&M expense. The operating costs are expressed in constant value current dollars.

Table ES.12
COTPA Conventional Bus Service O&M Unit Cost Data (2005)

Cost/Unit
$45.69/hour
$1.27/mile
35% G&A

Source: Central Oklahoma Transportation and Parking Authority
Note: The acronym G&A indicates the "General & Administrative Expenses"

High Occupancy Vehicle (HOV)

Operating costs for the HOV alternative would include maintenance and operating expense for paving, barriers, signage, pavement marking, traffic control, intelligent transportation systems, and personnel incorporated as components of the HOV system. Estimation of these operating costs is beyond the scope of this study and would require further preliminary planning and design of the HOV concept plan identified for this study.

Bus Rapid Transit (BRT)

Bus Rapid transit operating cost estimates are based on cost data reported for BRT corridors operating in other parts of the U.S. BRT systems possess two principle advantages:

1. Adaptability to diverse operating environments,
2. Scalability of carrying capacity to meet future increases in growth.

In designing a BRT system, a combination of BRT elements can be selected that fit the corridor constraints and opportunities, and whose capital and operating costs can be reasonably justified based on anticipated levels of passenger ridership. Baseline conditions are important to document, in order to assess the net impact of new transit service on overall performance, cost efficiency, service productivity and corridor ridership. Based on experience in other metropolitan areas, BRT typically provides lower operating costs, lower vehicle service hours and vehicle service miles compared to conventional fixed route bus service – while still offering customers enhanced service in the corridor. Estimated operating cost for the BRT service included in the system plan is shown in Table ES.13.

Table ES.13
Bus Rapid Transit Operating Cost Estimation

	Revenue Hours	Revenue Miles	Peak Vehicles	Total Annual O&M Cost
No Action (2030)	250,229	3,703,721	79	
BRT (includes Enhanced Bus)	585,176	9,947,461	152	
BRT Only	194,085	4,603,605	10	
Cost Per	$45.69	$1.27	35%	
Total No Action	$11.4 Million	$4.7 Million	$8.7 Million	$24.8 Million
Total Bus (Inc. BRT)	$26.7 Million	$12.6 Million	$21.2 Million	$60.6 Million
Added Cost Increment over No Action	$15.3 Million	$7.9 Million	$12.5 Million	$35.7 Million
BRT Only	$8.9 Million	$5.8 Million	$7.9 Million	$22.6 Million

Commuter Rail

Commuter rail operating costs fall into one of two categories - revenue operating costs and personnel costs. Revenue costs are those expenses incurred in moving passenger rail vehicles. They include all non-personnel costs associated with vehicles during normal operations. On a diesel-powered system the largest of these expenses is fuel. The second component of this cost would be expenses incurred in the operation of station facilities. Station operating costs are principally the cost of utilities. Personnel costs include salaries and benefits provided and general administrative costs.

Operating cost is provided in terms of operating or maintenance expense per vehicle revenue mile. A vehicle revenue mile is defined as the total number of miles traveled by all given commuter rail vehicles on a system during a defined period of time (usually reported on an annual basis). For example, a three-car train that travels one mile each day for five days each week for 52 weeks will generate 3 x 1 x 5 x 52 = 780 vehicle revenue miles.

Operating cost data was drawn largely from information reported by commuter rail properties to the Federal Transit Administration. Table ES.14 identifies basic data about the operating expenses of each of the commuter rail systems reviewed.

Table ES.14
Commuter Rail O&M Cost Base Data (2000)

Commuter Rail Agency	Annual Vehicle Revenue Miles (VRM)	Operating Expense/Vehicle Revenue Mile	Age of Fleet (years)
Chicago, IL Metra	35,946,350	$10.95	25
Northern Indiana CTD	2,806,470	$10.17	14.7
Los Angeles, CA Metrolink	6,484,857	$12.65	6.7
Florida TRI-RAIL	1,819,317	$11.31	10.4
New York City Long Island RR	56,741,509	$12.27	22.8
New York City Metro-North	48,937,593	$11.18	21.1
San Diego, CA Coaster	10,152,058	$10.64	5.8
San Francisco – San Jose, CA Caltrain	4,269,766	$11.97	12.1
Virginia Railway Express (VRE)	1,545,177	$12.13	19.7
2000 Average operating expense per VRM		$12.15	
2005 Average operating expense per VRM (adjusted for inflation from 2000 to 2005)		$14.06	

Assuming a cost of $15/vehicle revenue mile for commuter rail service and 645,826 annual revenue car miles for commuter rail service included in the system plan, the annual operating cost for commuter rail is estimated to be approximately $9.7 million, in 2005 dollars.

Light Rail Transit/Modern Streetcar

Assuming a cost of $15 per vehicle revenue mile for modern streetcar service, and 215,146 annual revenue car miles (Table 6.8) for modern streetcar service included in the system plan, the annual operating cost for modern streetcar is estimated to be approximately $3.2 million, in 2005 dollars.

Transit Supportive Development Policies

Land use and transportation are linked. Land use decisions influence transportation decisions and transportation decisions influence land use decisions. While these statements do not represent new insight, it has only been relatively recently that urban planners and transportation planners have both seemingly reached these conclusions and begun to develop policies and design projects in light of this understanding. As the ability to try to address congestion through continued expansion of roadways has become constrained by funding limitations, lack of right-of-way, federal mandates and growing opposition from citizens' groups, new policy approaches have been considered, and in come cases actually implemented. These policy approaches include:

- Improving the quantity of and quality of infrastructure that serves pedestrians, bicyclists and high occupancy vehicles
- Increasing the price of auto travel relative to other modes of travel
- Regulating more directly the zoning and design of new development
- Restricting the spread of urban expansion
- Encouraging or requiring suburban development at higher densities
- Creating nodes of new high intensity development

Recommended System Plan

The 2030 System Plan Vision, as indicated previously in Figure ES.2, represents a multi-modal vision for a fixed guideway transit system providing reliable, fast, and safe public transportation service to the Oklahoma City Metropolitan area. The plan consists of 670 miles of Enhanced Bus, 40 miles of Bus Rapid Transit (BRT), 42 miles of Commuter Rail Transit (CRT), and five miles of Downtown Modern Streetcar. Also, a new downtown Oklahoma City Intermodal Transportation Center (ITC) is proposed at a location near the rail intersection of the UP and BNSF railroads. The ITC will provide a centrally located hub for transfers between bus, BRT, CRT, and the downtown modern streetcar systems. Cost and ridership characteristics for the System Plan are summarized in Tables ES.15 – ES.18.

Table ES.15
Enhanced Bus

Technology:	Conventional Diesel or CNG Bus		
Annual Revenue Miles:	9.4 million		
Service Frequency:	15 – 30 min. Peak, 30 – 45 min. Off-Peak & Weekend		
Annual Operating Hours:	595,000		
Capital Cost:	$31.8 million	Annual Operating Cost:	$60.3 million
Annual Boardings:	6,230,000		
Annualized Cost Per Annualized Rider:	$0.56		

Table ES.16
Bus Rapid Transit

Technology:	Conventional Diesel or CNG Bus		
Annual Revenue Miles:	4.6 Million		
Service Frequency:	30 min. Peak, 60 min. Off-Peak & Weekend		
Annual Revenue Hours:	194,100		
Capital Cost:	$40.2 million	Annual Operating Cost:	$22.6 million
Annual Boardings:	751,200		
Annualized Cost Per Annualized Rider:	$9.80		

Table ES.17
Commuter Rail

Technology:	Conventional Diesel ; Modern DMU		
Annual Revenue Car Miles:	645,826		
Service Frequency:	30 min. Peak, 60 min. Off-Peak & Weekend		
Annual Revenue Car Hours:	25,050		
Capital Cost:	$234.0 million	Annual Operating Cost:	$9.7 million
Annual Boardings:	1,684,600		
Annualized Cost Per Annualized Rider:	$35.48		

Table ES.18
Modern Streetcar

Technology:	Electric		
Annual Revenue Car Miles:	215,146		
Service Frequency:	15 min. Peak, 30 min. Off-Peak & Weekend		
Annual Revenue Car Hours:	33,270		
Capital Cost:	$83.2 million	Annual Operating Cost:	$3.2 million
Annual Boardings:	759,800		
Annualized Cost Per Annualized Rider:	$19.97		

Implementation Strategy

A phased implementation strategy is proposed for construction of the fixed guideway system over time intervals based on the projected availability of funding and the capital cost of the various system plan components. The actual timing for implementation of the system plan may vary depending on the funding sources and amount of funds available to support development of the regional fixed guideway transit system.

Priorities and Phasing Plan

The recommended phased implementation plan is shown in Table ES.19**.** The phased implementation plan is indicated in detail in Chapter 7 of the Fixed Guideway Study Report.

Table ES.19
Potential Phased Implementation Plan

Corridor	Mode	Limits	Length (mi)	Capital Cost 2005 $ ($M)
Phase I: Years 2006-2013				
Enhanced Bus	Phase I	Systemwide	N/A	$19.1
Edmond Corridor	Commuter Rail	Downtown OKC to 63rd St	5.29	$30.3
Norman Corridor	Commuter Rail	Downtown OKC to 4th St	9.08	$52.0
Northwest Corridor	Bus Rapid Transit	Downtown Transit Center to Integris	6.50	$6.5
Central Corridor	Modern Streetcar	Downtown Transit Center to Ballpark Sta.	1.17	$19.6
Total Phase I				$127.5
Phase II: Years 2013-2020				
Enhanced Bus	Phase II	Systemwide	N/A	$12.7
Norman Corridor	Commuter Rail	4th St to Downtown Norman	9.68	$41.2
Northwest Corridor	Bus Rapid Transit	Integris to Council Sta.	5.22	$5.2
Yukon Corridor	Bus Rapid Transit	Downtown OKC to 15th Sta.	7.60	$7.6
Central Corridor	Modern Streetcar	Ballpark Sta. to OU Medical South Sta.	2.12	$35.4
Total Phase II				$102.1
Phase III: Years 2020-2025				
Edmond Corridor	Commuter Rail	63rd St to Downtown Edmond	8.88	$61.0
West I-44 Corridor	Bus Rapid Transit	15th Sta. to Airport Sta.	3.70	$3.7
Northwest Corridor	Bus Rapid Transit	Council Sta. to Kilpatrick	2.73	$2.7
Central Corridor	Modern Streetcar	OU Medical South Sta. to Broadway Sta.	0.83	$13.8
Total Phase III				$81.2
Phase IV: 2025-2030				
MWC/Tinker Corridor	Commuter Rail	Downtown OKC to Tinker Sta.	9.59	$49.5
I-240 Corridor	Bus Rapid Transit	FAA Sta. to 59th St Sta.	8.40	$8.4
Yukon Corridor	Bus Rapid Transit	Reno Sta. to Sara Sta.	6.10	$6.1
Central Corridor	Modern Streetcar	Broadway Sta. to Downtown Transit Center	0.86	$14.4
Phase IV Total				$78.4
Grand Total				$389.2

Funding Mechanism

Historically, transportation and transit projects have been funded with dedicated tax revenues specifically designed for a specific transportation purpose. Transit systems nationwide have a dedicated source of tax funds for transit. As both highway and transit capital cost increase to levels above the ability for local jurisdictions to finance these systems, agencies have looked toward increasingly complex financial packages to support projects. Sources of funding could include:

- Federal Transit Grants
- Joint Development
- Federal Transportation Loans
- Other Federal Grants
- Local Funding Options

Maintaining the Momentum

The recommended 2030 Fixed Guideway System Plan Vision is the result of a 12-month long feasibility study using thorough technical analysis supported by extensive public involvement, which recommends alternative fixed guideway transit service in multiple corridors based on population, employment, and travel demand needs projected to the year 2030. It is imperative that focused efforts to "Maintain the Momentum" are initiated in 2006 and that the implementation process for some of the most essential transit needs begin. Following is a set of recommended strategies that COTPA and other entities throughout the Oklahoma City Metropolitan area should initiate in 2006:

1. Appointment of a well respected, single individual that would serve as the project's "Champion" providing the project an enhanced creditability, public awareness, and focus on the project's needs during its early implementation phase. Characteristics of this individual might include:

    a. Well-recognized with "name brand" appeal
    b. Well-respected business person known throughout the region
    c. History of supporting transportation and/or public transportation initiatives
    d. No conflicts of interest with transit implementation programs
    e. Available to commit significant time during upcoming year
    f. Good communicator

2. Creation of a five- to seven-person Oklahoma City Regional Transit Committee responsible for creating regional ownership of the Fixed Guideway System Plan and soliciting support from all affected cities and entities. The project "Champion" would serve as one of the members of this committee. The Committee would contain a mix of business and community leaders and would represent the following cities or entities:

    a. City of Oklahoma City
    b. City of Edmond
    c. City of Norman
    d. City of Midwest City
    e. Oklahoma County
    f. COTPA Board of Trustees Representative
    g. Other cities, higher education, and/or other entities

3. Initiation by Association of Central Oklahoma Governments (ACOG) for the creation of multi-modal mode split travel demand and ridership estimation computer model. This mode split ridership model will be a prerequisite to and requirement for use during the starter corridor's FTA Alternatives Analysis process.

4. Fulfillment of obtaining an appropriation earmark in the FY2007 Transportation Appropriations Bill for Alternatives Analysis on the initial starter corridor.

5. Identification by COTPA of an initial corridor starter project that could move forward in the year 2006 into the next phase of FTA Alternatives Analysis. Initial efforts by COTPA would include the development of a Request for Proposals for planned issuance in late 2006.

6. Obtain commitment of The Oklahoman newspaper and its editorial board to publish focus articles on the COTPA Fixed Guideway System Plan on a bi-annual (six-month) basis, keeping the public informed on the project's progress. Each focus article could be on a different topic, including benefits of enhanced public transportation, funding strategies, connections to the community, etc.

7. Commitment of COTPA to maintain on its agency web site all current project-related information and reports for easy viewing by the public.