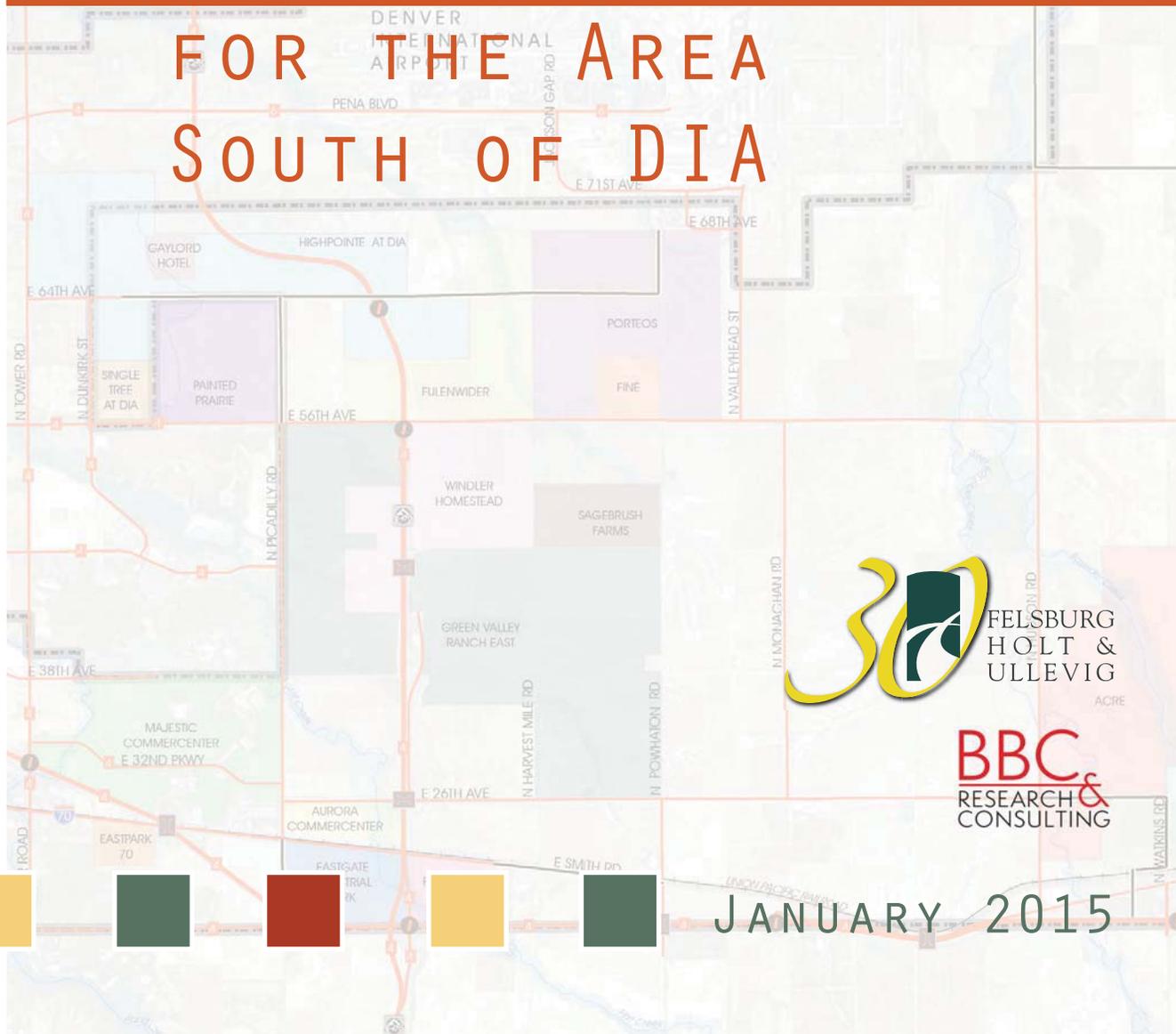


CITY OF  
**AURORA**



# STREET CONSTRUCTION PRIORITY PROGRAM

## FOR THE AREA SOUTH OF DIA



**BBC**  
RESEARCH &  
CONSULTING

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**STREET CONSTRUCTION PRIORITY PROGRAM  
FOR THE AREA SOUTH OF DIA**

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## **I. INTRODUCTION**

### **A. *Project Goal***

The Aurora City Council priorities for 2013 recognized the opportunity for commercial development within part of the city north of I-70 in the E-470 corridor and eastern plains. This area includes Aurora's portion of the aerotropolis concept for land outside of the Denver International Airport (DIA). The City Council urged evaluation of the existing infrastructure to determine what actions may accelerate job creation. Part of the stakeholder process was to determine which infrastructure projects were the most critical in creating commercial development south of the airport. The stakeholder group came to a consensus that the provision of transportation projects that provided a second route to the airport is the most critical infrastructure issue. From that point the focus of the study became street construction priorities.

This study is the product of the Aurora City Council priorities and included a rigorous stakeholder involvement process to evaluate all of the planned development south of DIA within Aurora City Limits to determine what transportation infrastructure is necessary for rapid land development. The study has been designed to provide technical evaluation of the existing transportation network to determine existing deficiencies and future network needs as development occurs. Through this process a list of potential projects and a ranking procedure determined a list of priority projects recommended for accelerating growth in the study area. The second stage of study included recommendation of funding mechanisms for moving the transportation infrastructure development ahead. These topics have been summarized in Chapters II and III, titled Transportation Needs and Funding Proposal, respectively. Chapter IV includes a Summary of Recommendations.

### **B. *Process***

The study process focused on the preparation and presentation of technical materials to a Stakeholder Group at three meetings. The Stakeholder Group consisted primarily of local property owner representatives, municipal representatives from adjacent jurisdictions, and City of Aurora staff. The goal for this Stakeholder Group was to collect and present the latest development plans, to discuss needed transportation infrastructure improvements and prioritization, and to discuss potential funding alternatives for moving development forward through a fair and practical funding model.

## II. TRANSPORTATION NEEDS

### A. *Planned Developments*

Development plans within the City of Aurora south of DIA include significant commercial and residential uses in a number of known development areas. A primary goal of the early stakeholder coordination was to provide a summary for review and verification by each of the developers. **Table 1** shows the finalized development summary which includes details about the number of residences, hotel rooms, and retail, office, and industrial square footages. **Figure 1** shows each development's location. The development sizes listed reflect the planned development levels listed in the most recent iteration of each area's framework development plan and reflect build out of those plans.

### B. *Existing Transportation Infrastructure and Future Traffic Forecasts*

The transportation infrastructure planning process for this study first examined the existing system to identify the current conditions including the location of existing roadways, along with characteristics such as number of lanes and roadway surface (gravel or paved).

Building upon the Northeast Area Transportation Study (NEATS) completed in 2007, a comprehensive transportation planning study, a comparison of the future land use evaluated for NEATS versus the newly compiled development plans collected for this study was completed. The development plans considered during NEATS were found to be generally consistent with the newly compiled development data for all planned areas within the study area except for the Porteos development. Since the original NEATS study, land use plans for the Porteos parcel have changed and now represent significantly denser development than previously provisioned. To reflect this land use adjustment, **Figure 2** provides alternative daily traffic forecasts surrounding the Porteos development (red) in addition to the original NEATS forecasts (black).

The focus of NEATS was the local transportation infrastructure within the City of Aurora, and included traffic forecasts for roadways within the study area. To provide regional context, **Figure 3** provides daily traffic forecasts from the 2035 Denver Regional Council of Governments' (DRCOG) travel demand model for areas outside the NEATS area.

### C. *Roadway Needs*

Significant transportation network enhancements will be necessary as the development plans recognized by this study and NEATS begin to be realized. These improvements are consistent with the road network plan documented in the NEATS and recognize construction and widening of many arterial roadways within the study area to three lanes in each direction.

In determining the best approach for meeting this study's goal of accelerating development in the study area, the project team and stakeholders recognize that construction of full build out cross sections throughout the study area is not necessary. Instead, by focusing on establishing safe reliable roadways built as half of future four and six lane cross-sections more access can be provided to currently inaccessible areas, faster. With this approach in mind, the roadway projects identified for potential development in this plan represent a complete interim transportation network. **Figure 4** identifies 21 roadway projects within the study area. These projects are separated into regionally oriented interchange projects and arterial road segment projects.

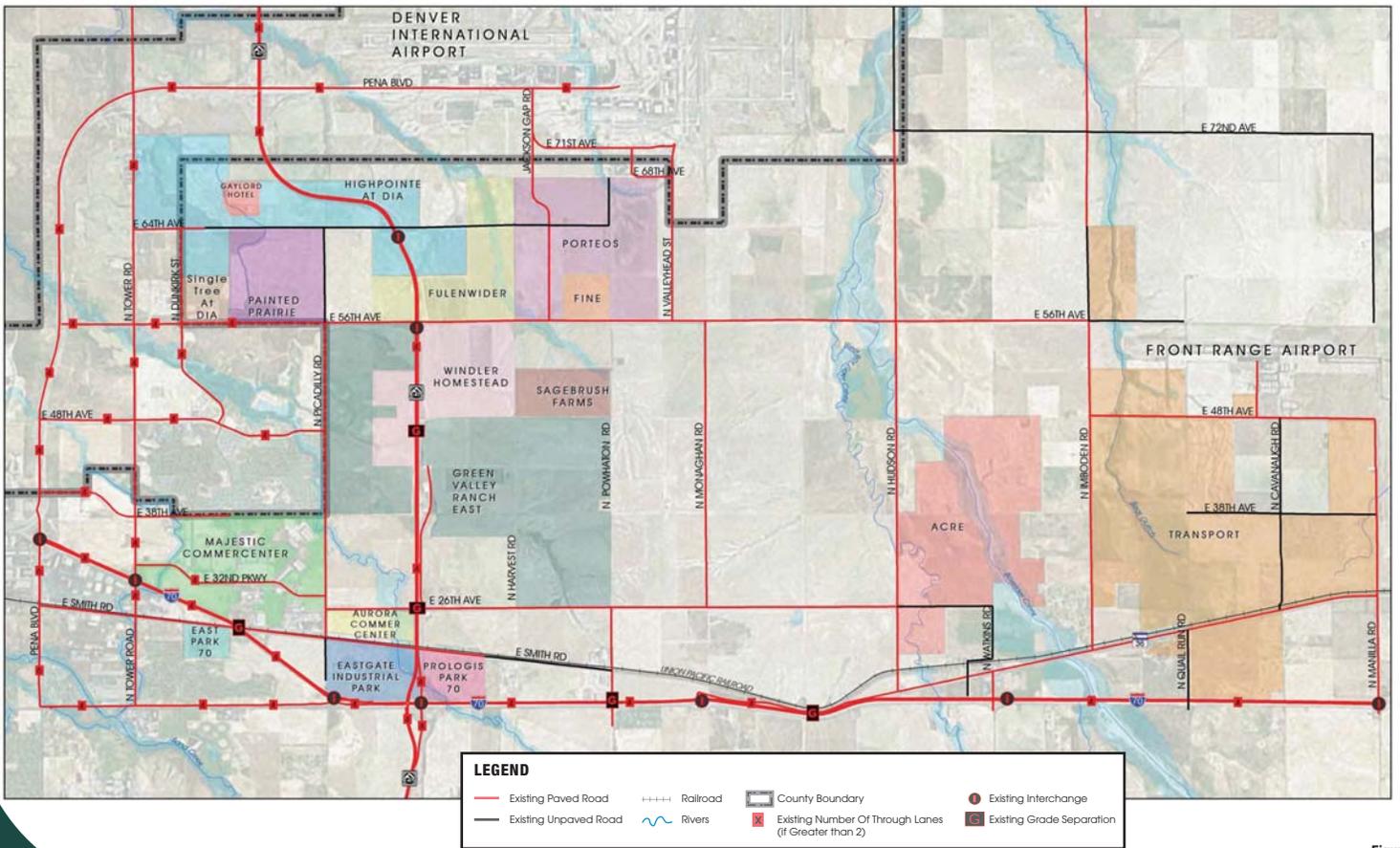


Figure 1  
Development Areas  
NORTH

Site	Dwelling Units	Retail (sf)	Hotel (rooms)	Office (sf)	Industrial (sf)	Date of Most Recent Plan	Approximate Build Out Trip Generation (vpd)
Aurora's Campus for Renewable Energy					1,762 acres	12/2008	Not Available
Aurora Commerce Center					2,800,000	08/2003	7,000
East Gate Industrial Park					3,946,000	09/2003	28,000
Eastpark 70					1,660,000	03/2004	8,000
Fine		213,000	307	540,744	1,009,896		17,000
Fulenwider		1,076,042	1,553	2,731,751	5,101,831		84,000
Green Valley Ranch East	12,356	2,660,174		2,532,887		08/2005	135,000
Highpointe at DIA	1,928	409,000	2,520	9,163,000	2,215,000	08/2010	156,000
Majestic Commerce Center					355 acres	08/1996	22,000
Painted Prairie	3,053	221,600		15,200		02/2006	31,000
Porteos		1,775,000	2,562	4,506,200	8,415,800	01/2013	139,000
Prologis Park 70					28 acres	11/2012	26,000
Sage Brush Farms	988					09/2007	8,000
Singletree	300					11/2005	2,000
Transport				2,217 acres	3,198 acres	04/2006	Not Available
Windler	2,800	1,500,000		10,000,000		01/2004	95,000

**Table 1**  
Planned Developments Summary



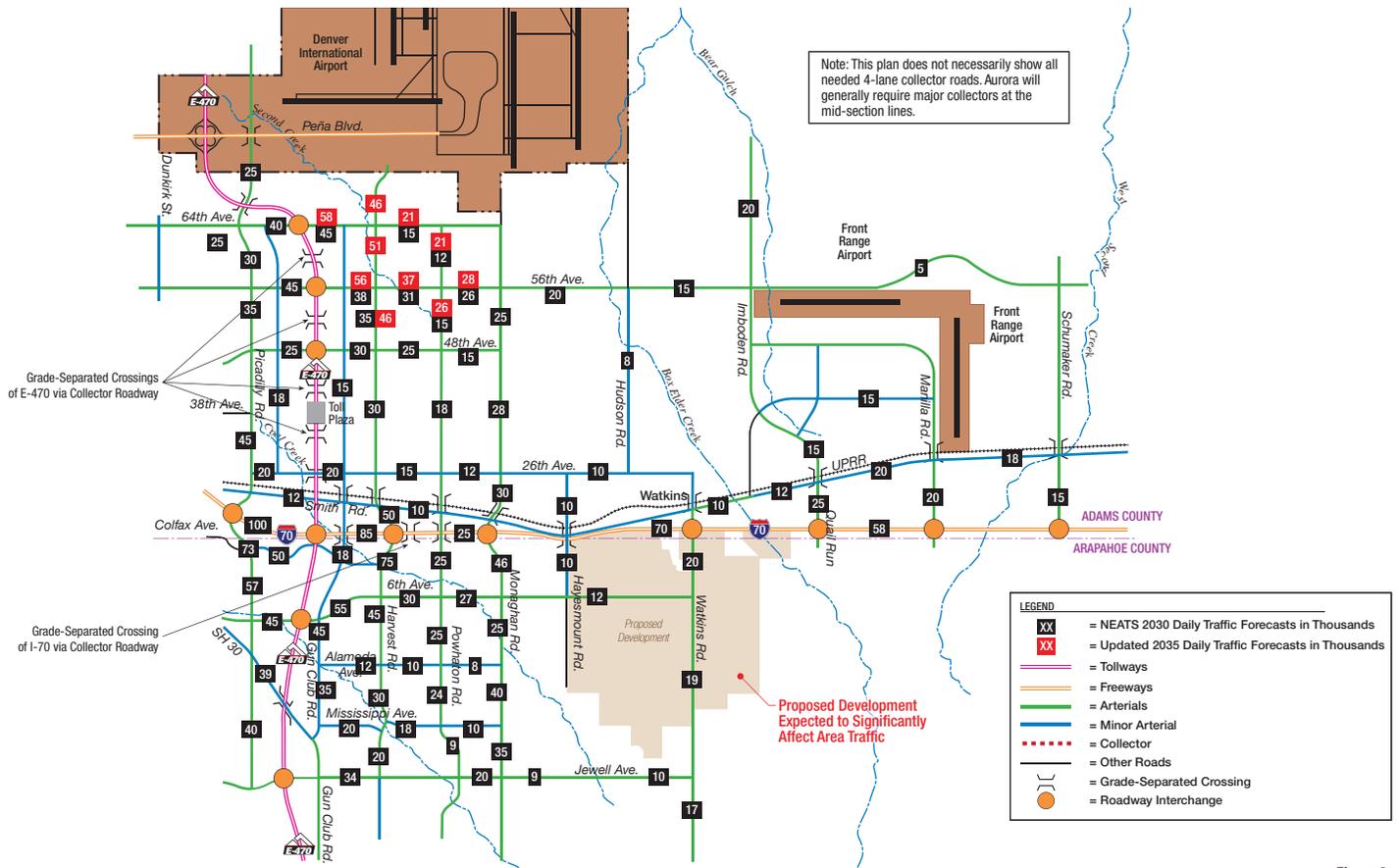
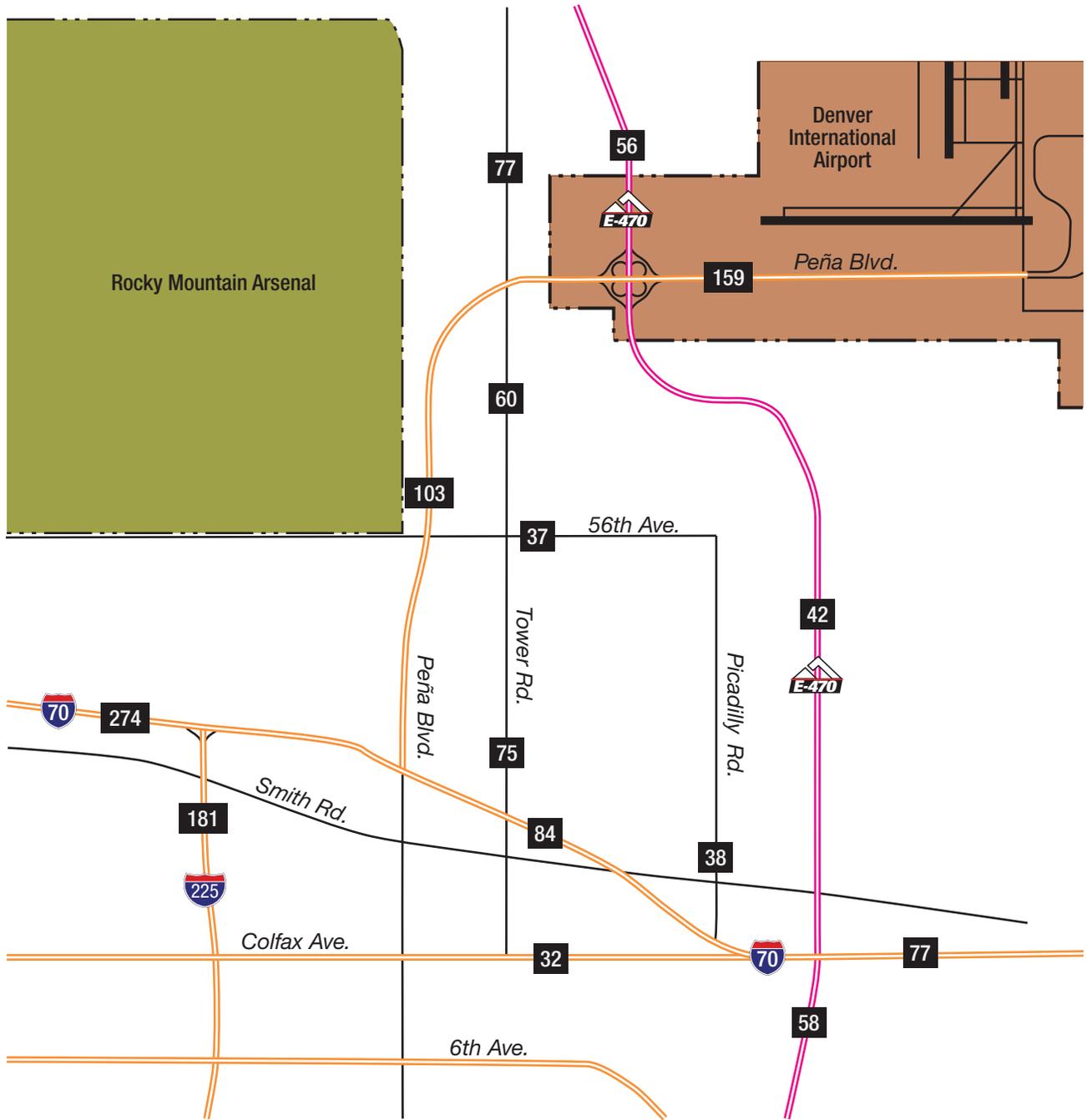


Figure 2  
Updated NEATS Future Daily Traffic Forecasts





**LEGEND**  
 XX = 2035 Daily Traffic Forecasts in Thousands

**Figure 3**  
 2035 Regional Daily Traffic Forecasts

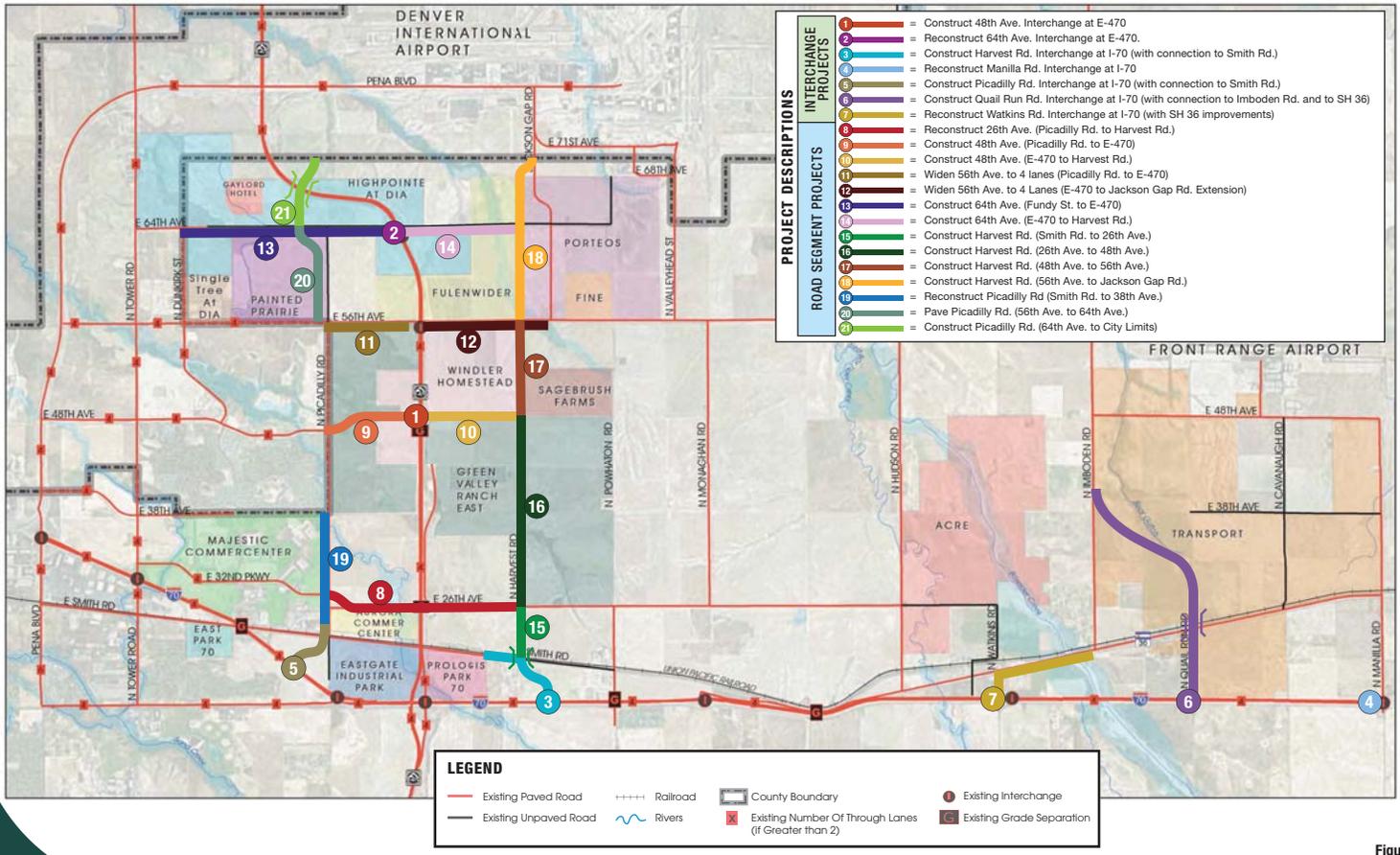


Figure 4  
Potential Priority Projects



**D. Project Ranking Procedure**

The project ranking process involved the development of ten measures, including a mixture of qualitative and quantitative metrics. Descriptions of each of the ranking metrics follow:

- **Developments Served** – This measure was determined by counting the number of adjacent developments that would directly benefit from the proposed improvement.
  - **Economically Beneficial Land Uses** – This metric was prepared using planning level land use characteristics to typify how well each project will generate taxes and revenue to fund infrastructure improvements. The projects identified as Development Served for the previous indicator have been aggregated and the rough fiscal benefit quantified by BBC and the resulting totals have been ranked as high or moderate for this category.
  - **Regional Connectivity** – This measure evaluated each project’s level of connectivity as either Intermediate or Direct. Direct projects funnel traffic immediately to I-70 while Intermediate projects provided access to the tolled E-470 facility or arterial roads not immediately connected with the interstate system.
  - **Short Term Development Need** – This measure identified the most immediate development prospects and then promoted the associated adjacent roadways.
  - **Proximate to Existing Infrastructure** – This metric evaluated each project’s proximity to existing infrastructure giving priority to projects in the western part of the study area that are served by or adjacent to existing infrastructure.
  - **Accessibility to Adjacent Land Uses** – This category characterized the degree and immediacy of need for each project. Projects with no existing access or convenient parallel routes are ranked highest. A middle ranking is given to projects where access exists but where the project would substantially improve the directness of access. The lowest level projects are those with existing infrastructure with adequate capacity for the short-range future.
  - **Forecast Volume** – The Average Daily Volumes identified from this field refer to the 2030 NEATS daily forecasts generated during the original 2005 study. One area around Porteos was evaluated through a land use comparison and was found to inadequately generate trips compared to new development planning documents resulting in the red revised forecasts.
  - **Total Planning Level Cost Estimate** – The cost estimates represent 2014 dollars anticipated for the construction of each project. Importantly, road segment projects have been developed to reference costs for three lane segments throughout the development area (one lane in each direction and a center turn lane). It is expected that a six lane section will eventually be needed for many of the planned roadways, as defined in the NEATS study, but full roadway cross-sections would not be necessary in the short to medium range future. Cost estimates are referred to as “total” to indicate that they represent the total project cost as opposed to the share that would benefit the study area.
  - **Cost/Daily Trip Served** – This metric is a relative measure of the cost effectiveness of each project. This metric provides comparison between the Forecast Volume and Total Planning Level Cost Estimate.
-

- **Cost Sharing Opportunities with Other Jurisdictions** – This category denotes projects with the opportunity to share costs outside the study area. “Yes” is indicated for the three I-70 interchanges with significant development potential to the south and to Picadilly Road in the northern part of the study area adjacent to the Pena Boulevard corridor and leading to Adams County and Commerce City.

Discussions with City of Aurora staff and the Stakeholder Group resulted in the completed project ranking matrix provided as **Table 2**.

### ***E. Priority Projects***

The result of the project ranking process is a list of high priority projects. These projects represent the highest scoring projects from the listing within the interchange project category and road segment project category. The following high priority projects have been reviewed for individual utility to ensure that network continuity and reasonableness has been incorporated into the prioritization process.

Projects identified as high priority represent the greatest opportunities for accelerating development due to the location and connection created. Four interchange projects have been identified for inclusion in the high priority projects. Each is described below with the rationale for the high ranking and anticipated project benefits:

1. **Construct 48<sup>th</sup> Avenue Interchange at E-470 [Project #1]** – Completion of this interchange involves the construction of ramps between E-470 and 48<sup>th</sup> Avenue. There is an existing 48<sup>th</sup> Avenue bridge crossing of E-470 at this location, but it will require completion of 48<sup>th</sup> Avenue between Picadilly Road and E-470 and E-470 and Harvest Road to provide access (both projects are listed below). This project ranked high due to its relative low cost and ability to connect a high degree of economically beneficial land uses to the transportation system.
2. **Construct Harvest Road Interchange at I-70 (with connection to Smith Road) [Project #3]** – Construction of this interchange provides a new connection into the development area east of E-470 from I-70. North-south traffic flows will be enabled through this regional infrastructure project. There is an opportunity for the high project cost of this interchange to be shared with adjacent land uses south of the interchange, which should be explored. This project ranked high due to its ability to provide accessibility to currently inaccessible areas and to connect a high degree of economically beneficial land uses to the regional transportation system, along with the opportunity to share costs with development south of I-70.
3. **Construct Picadilly Road Interchange at I-70 (with connection to Smith Road) [Project #5]** – Construction of this interchange provides a new connection into the development area west of E-470 from I-70. North-south traffic flows will be enabled through this regional infrastructure project. There is an opportunity for the high project cost of this interchange to be shared with adjacent land uses south of the interchange, which should be explored. This project ranked high due to its ability to provide accessibility to currently poorly accessed areas and to connect a high degree of economically beneficial land uses to the regional transportation system, along with the opportunity to share costs with development south of I-70.

			Developments Served Economically/Beneficial Land Uses	Regional Connectivity	Short Term Development Need	Proximity to Existing Infrastructure	Accessibility to Adjacent Land Uses	Forecast Volume (Average Daily Volume)	Total Planning Level Cost Estimate	Cost/Daily Trip Saved	Cost Sharing Opportunities with Other Jurisdictions	High Priority Projects
<b>INTERCHANGE PROJECTS</b>	1. Construct 48th Ave Interchange at E-470	3	High	Inter-mediate	Yes	Yes	Connection Improves Accessibility	30,000	\$5.0M	170	No	Yes
	2. Reconstruct 64th Ave Interchange at E-470	4	Moderate	Inter-mediate	Yes	Yes	Short Term Accessibility Available	58,000	\$5.0M	90	No	
	3. Construct Harvest Rd Interchange at I-70 (with connection to Smith Rd)	7	High	Direct	No	Yes	Connection Needed for Short Term Accessibility	50,000	\$23.6M	440	Yes	Yes, with Cost Sharing
	4. Reconstruct Manilla Rd Interchange at I-70	1	Moderate	Direct	No	No	Short Term Accessibility Available	20,000	\$3.0M	150	No	
	5. Construct Picadilly Rd Interchange at I-70 (with connection to Smith Rd)	5	Moderate	Direct	No	Yes	Connection Needed for Short Term Accessibility	45,000	\$30.9M	690	Yes	Yes, with Cost Sharing
	6. Construct Quail Run Rd Interchange at I-70 (with connection to Imboden Rd and to SH 36)	1	Moderate	Direct	No	No	Short Term Accessibility Available	25,000	\$30.0M	1200	No	
	7. Reconstruct Watkins Rd Interchange at I-70 (with SH 36 improvements)	2	Moderate	Direct	No	Yes	Connection Improves Accessibility	10,000	\$18.6M	1860	Yes	Yes, with Cost Sharing
<b>ROAD SEGMENT PROJECTS</b>	8. Reconstruct 26th Ave (Picadilly Rd to Harvest Rd)	2	Moderate	Inter-mediate	Yes	Yes	Connection Improves Accessibility	20,000	\$7.3M	370	No	
	9. Construct 48th Ave (Picadilly Rd to E-470)	3	High	Inter-mediate	Yes	Yes	Connection Improves Accessibility	25,000	\$2.7M	110	No	Yes
	10. Construct 48th Ave (E-470 to Harvest Rd)	3	High	Inter-mediate	Yes	Yes	Connection Improves Accessibility	30,000	\$3.2M	110	No	Yes
	11. Widen 56th Ave to 4 lanes (Picadilly Rd to E-470)	3	High	Inter-mediate	No	Yes	Short Term Accessibility Available	45,000	\$3.6M	80	No	
	12. Widen 56th Ave to 4 lanes (E-470 to Jackson Gap Extension)	4	High	Inter-mediate	No	Yes	Short Term Accessibility Available	56,000	\$4.5M	80	No	
	13. Construct 64th Ave (Fundy St to E-470)	2	Moderate	Inter-mediate	Yes	Yes	Connection Needed for Short Term Accessibility	40,000	\$7.3M	180	No	Yes
	14. Construct 64th Ave (E-470 to Harvest Rd)	3	Moderate	Inter-mediate	Yes	Yes	Connection Needed for Short Term Accessibility	58,000	\$4.5M	80	No	Yes
	15. Construct Harvest Rd (Smith Rd to 26th Ave)	6	High	Direct	No	No	Connection Needed for Short Term Accessibility	50,000	\$11.8M	240	No	
	16. Construct Harvest Rd (26th Ave to 48th Ave)	6	High	Direct	Yes	No	Connection Needed for Short Term Accessibility	30,000	\$7.3M	240	No	
	17. Construct Harvest Rd (48th Ave to 56th Ave)	6	High	Direct	Yes	Yes	Connection Needed for Short Term Accessibility	46,000	\$3.6M	80	No	Yes
	18. Construct Harvest Rd (56th Ave to Jackson Gap Rd)	6	High	Direct	Yes	Yes	Connection Improves Accessibility	51,000	\$7.3M	140	No	
	19. Reconstruct Picadilly Rd (Smith Rd to 38th Ave)	4	Moderate	Direct	Yes	Yes	Connection Improves Accessibility	18,000	\$6.2M	340	No	
	20. Pave Picadilly Rd (56th Ave to 64th Ave)	3	Moderate	Inter-mediate	Yes	Yes	Connection Needed for Short Term Accessibility	30,000	\$3.6M	120	No	Yes
	21. Construct Picadilly Rd (64th Ave to CL)	3	Moderate	Inter-mediate	No	Yes	Connection Improves Accessibility	25,000	\$7.7M	310	Yes	

Color Signifies Higher Relative Performance within Each Category

**Table 2**  
Project Ranking Matrix



4. **Reconstruct Watkins Road Interchange at I-70 (with SH 36 improvements) [Project #7]** – Reconstruction of this interchange provides enhanced accessibility to the developments in the eastern portion of the study area. There is an opportunity for the cost of this interchange to be shared with adjacent land uses south of the interchange, which should be explored. This project ranked high due to its ability to provide accessibility to currently poorly accessed areas, along with the opportunity to share costs with development south of I-70.

Six road segment projects have been identified for inclusion in the high priority projects. Each is described below with the rationale for the high ranking and anticipated project benefits:

1. **Construct 48<sup>th</sup> Avenue (Picadilly Road to E-470) [Project #9]** – Construction of this road segment provides regional access to the transportation network via the previously described new interchange with E-470. This project ranked high due to its relative low cost and ability to connect a high degree of economically beneficial land uses to the transportation system.
2. **Construct 48<sup>th</sup> Avenue (E-470 to Harvest Road) [Project #10]** – Construction of this road segment provides regional access to the transportation network via the previously described new interchange with E-470. This project ranked high due to its relative low cost and ability to connect a high degree of economically beneficial land uses to the transportation system.
3. **Construct 64<sup>th</sup> Avenue (Fundy St to E-470) [Project #13]** – Reconstruction of this road segment upgrades the facility from a gravel surface to a paved surface. This improved connection provides regional access to E-470 from local development areas. This project ranked high due to the need for short term accessibility to adjacent development.
4. **Construct 64<sup>th</sup> Avenue (E-470 to Harvest Road) [Project #14]** – Reconstruction of this road segment upgrades the facility from a gravel surface to a paved surface. This improved connection provides regional access to E-470 from local development areas. This project ranked high due to the need for short term accessibility to adjacent development.
5. **Construct Harvest Road (48<sup>th</sup> Avenue to 56<sup>th</sup> Avenue) [Project #17]** – Construction of this road segment provides local north-south access to the transportation network with regional connections via 48<sup>th</sup> Avenue and 56<sup>th</sup> Avenue. This project coordinates with the construction of 48<sup>th</sup> Avenue east of E-470. This project ranked high due to its relative low cost and ability to connect a high degree of economically beneficial land uses to the transportation system.
6. **Pave Picadilly Road (56<sup>th</sup> Avenue to 64<sup>th</sup> Avenue) [Project #20]** – Construction of this road segment fills a gap in the north-south road network by providing local uses access to the regional connections via 56<sup>th</sup> Avenue and 64<sup>th</sup> Avenue. This project ranked high due to its relative low cost and the need for short term accessibility to adjacent development.

Street Construction Priority Program for the Area South of DIA

CITY OF AURORA

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Taken as a whole, these projects provide currently inaccessible or underserved development areas of the study area transportation access designed to accelerate development opportunities. **Table 3** summarizes the planning level cost estimates. Totaled the high priority interchange projects and road segment projects planning level cost estimates are \$78.1M and \$24.9M, respectively. All projects totals the cost for all identified interchange projects and road segment projects from the complete potential priority project listing (**Figure 4**) and project ranking matrix (**Table 2**).

**Table 3. Project Costs by Project Type**

<b>Project Type</b>	<b>High Priority Projects Estimated Cost</b>	<b>All Projects Estimated Cost</b>
<b>Interchange Projects</b>	\$78.1M	\$116.1M
<b>Road Segment Projects</b>	\$24.9M	\$80.6M
<b>Total Cost</b>	<b>\$103.0M</b>	<b>\$196.7M</b>

### **III. FUNDING PROPOSAL**

#### **A. *Traditional Funding Approach***

Funding for roadway infrastructure in Aurora is currently approached on a case-by-case basis. The city uses individual agreements with landowners to fund the necessary roadway improvements for particular developments. In these agreements, landowners are typically responsible for funding construction of road segments adjacent to the property. Funding gaps are then covered with General Funds or impact fee revenues.

This traditional funding approach has worked well and should remain an important part of the mix for study area road financing. However, this approach alone will likely not speed development activity enough to meet the objectives of the city and stakeholders. In part, this is because new interchanges are a major component of the infrastructure needed in this area. Interchange improvements are expensive and require funds beyond scale of the traditional funding approach. Without adequate highway access, development in the area will be limited and therefore developing additional funding mechanisms to generate sufficient revenues to fund interchange improvements is a priority for both the city and local landowners.

The traditional adjacency funding strategy is better suited to fund arterial roads, but it could be amended to better facilitate development phasing within the study area. The traditional approach only provides funding for the road segments immediately contiguous to development. However, in areas without a pre-existing road network, this approach can lead to incomplete roads segments and undesirable dead-ends until the area is fully developed. In stakeholder meetings conducted in the summer of 2014, there was some support for funding partial cross-sections (i.e. 2 or 4 lanes) and enabling construction dollars to spread along longer, connected road segments. As development in the area progresses, roads can be widened to serve the additional capacity, but in the meantime developers want a funding strategy that prioritizes complete roadway connections.

#### **B. *Improvement Benefits***

Beneficiaries of transportation improvements are those individuals, property owners or businesses that experience increased business volume, travel convenience, time savings or property value enhancement because of infrastructure improvements and more efficient traffic flow. The infrastructure improvements included in this study can be divided into two categories based on how many developments will benefit from an improvement.

The first category includes interchange improvements, which will benefit all future developments in the study area as well as throughout the entire system. Interchange benefits include the following:

- Improved access to all developments within the study area
- Inducement of local development;
- Providing access to existing developments in the study area; and
- Providing access to existing and future developments south of I-70.

The second category of improvement projects includes arterial roadways. Road segment projects have both regional and local benefits. Benefits of arterials include the following:

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- Increased regional connectivity;
- Decreased travel distances as circuitous routes are reduced;
- Improved access to businesses and residential areas;
- Increased visibility to adjacent commercial properties; and
- Better access to regional attractions and shopping centers, potentially encouraging repeat visits and local spending.

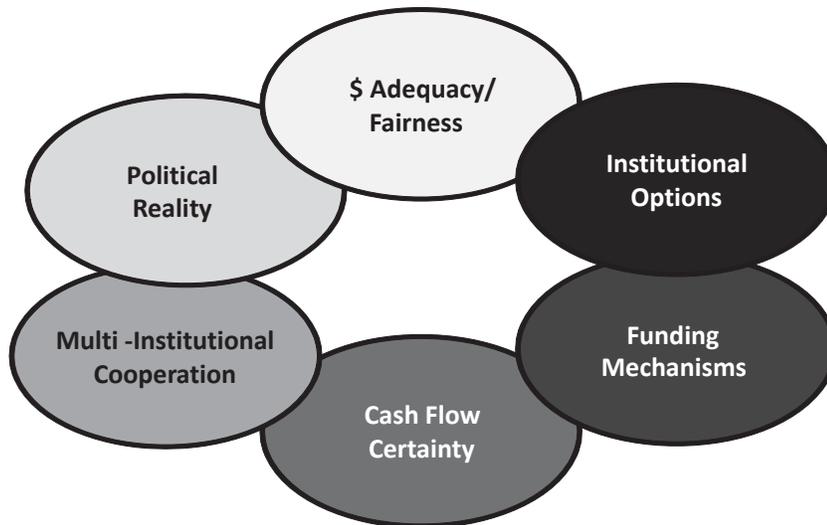
The following list of funding mechanisms takes into accounts the two benefit classifications and proportionally allocates costs.

**C. Funding Evaluation Process**

The public involvement process included the City and Stakeholder Group to represent a broad range of community interests and get buy-in from local landowners and developers. During a stakeholder meeting the group was shown various potential methods to fund the prioritized improvements and discussed the benefits and deficits of a wide range of broad and targeted funding mechanisms.

The conceptual framework for funding improvements in the area south of DIA is the concept that the cost should be borne principally by those that benefit from improved roadways and that beneficiaries should participate in rough proportion to their degree of benefit. Early in the planning process, consultants, stakeholders and city staff acknowledged that defining a fair and practical funding plan meant balancing many disparate factors. **Figure 5** shows a visual representation of the factors that must be in balance to achieve an equitable funding strategy for the area south of DIA.

**Figure 5. Funding Challenge: Finding a Balance**



In the stakeholder discussions, the above graphic was used to represent the core issues involved in fashioning an appropriate transportation funding solution and to demonstrate that the requirement for practicality implied balancing multiple community objectives.

The group was presented several funding mechanisms and supporting institutions for evaluation that could be used to generate and collect funds for transportation improvement. **Figure 6** presents a list of potential revenue generation tools and administrative institutions that were evaluated by stakeholder members.

**Figure 6. Revenue Generation Mechanisms and Taxing Institutions**

Revenue	Institution
■ General Fund	■ City
■ Mill Levy	■ Metro District
■ Special Assessment	■ Special Improvement District
■ Public Improvement Fee (PIF)	■ Private Agreements
■ Impact Fees	■ Transportation Authority
■ Lodging Tax	■ General Improvement District
■ Real Estate Transfer Assessment (Private)	■ Intergovernmental Agreement
■ Utility Fee	■ Urban Renewal Authority
■ Tax Increment Financing (TIF)	
■ Direct Contributions/Exactions	

The revenue generation tools in the above list were evaluated against a series of criteria, including revenue stream certainty, revenue stream growth along with community growth, placement of funding burden on users, and likelihood of stakeholder acceptance.

Once an appropriate mix of funding mechanisms was identified, administrative institutions were evaluated based on a set of standards that included ease of formation, administrative requirements, public acceptance and legislative authority to impose the selected taxes, assessments and/or fees.

After receiving stakeholder and city input and suggestions, the consultant team and the city selected a mix of funding mechanisms that offer a fair apportionment of costs and reliable revenue production. The selected administrative institution has broad revenue raising power and offers broad flexibility for the City of Aurora.

**D. Selected Funding Mechanisms**

The following funding mechanisms were chosen because they can be employed in a manner that meets the core criteria; and generates a reliable revenue stream that can be used to meet the needs of the stakeholders. A two-tiered funding approach has been recommended that takes into account the project categories: interchange projects and road segment projects. Because interchanges and arterial roads benefit parties differently, the recommended funding strategy is built upon multi-level coordination between the city and landowners and suggests different funding approaches for interchange projects and road segment projects.

One of the most effective ways the city can contribute to catalyzing development activity is through its bonding capacity. The city could issue bonds and use the proceeds to fund priority projects in the near term and induce development activity. Many of the following financing mechanisms can then be used as a source for debt service payments for revenue bonds or other types bonds.

1. *Interchange Project Funding Mechanisms*

The seven interchange projects identified for the area south of DIA are estimated to cost approximately \$116.1M; of this, \$78.1M would be necessary to construct the high priority projects. These improvements would benefit developments beyond the immediate study area suggesting a broader funding strategy than the traditional adjacency approach. Additionally, since the interchange improvements are essential to inducing development and will serve all future development in the area, stakeholders agreed that interchange funding should be prioritized.

**Improvement Districts** Municipalities can generate revenues for large capital through improvement districts. Improvement districts overlay specific areas that stand to benefit from local projects. Land owners within the district often pay either additional property taxes or special assessments and the resulting revenues are used to fund large capital projects within the district boundaries. While cities can propose improvement districts, they must then be approved by landowners within the district boundaries.

One advantage to using improvement districts is that they can be designed to collect revenues from a specific benefit area. Since interchange projects benefit developments on both sides of the interstate, improvement districts may enable revenues to be raised from landowners outside of the bounds of this study area. It is important to explore potential inclusion in the general improvement district (GID) of a broader area, particularly development south of I-70 that will benefit from highway interchange improvements.

Given landowner approval, a GID can serve as the primary administrative entity for transportation funding in the study area. The GID can impose a mill levy and collect fees. It can also then determine how to best use the revenues to meet the infrastructure needs of the area.

**Property Tax** – GIDs have the authority to impose an additional mill levy within the district, which has the potential to generate significant revenues that can be used to fund large interchange projects. One of the primary advantages to this approach is that property tax has the potential to produce a substantial and reliable revenue stream that is bondable and will grow over time as property is developed. These revenues can fund collectively beneficial infrastructure improvements including interstate interchanges, grade-separated railroad crossings, and drainage facilities. This mechanism will raise revenues roughly proportional to those that benefit most from property value increases related to transportation improvements in the area.

Given the study area's location on the southern edge of the Niobrara shale formation, there is also the unique potential that a GID could collect property tax on future oil and gas development. Properties within the study area have already been identified for potential future exploration and any resulting production would be subject to the district's mill levy. Depending on the scale of future oil and gas development, GID property tax

receipts could be significant because oil and gas is assessed at 87.5 percent, or roughly three times the commercial assessment ratio.

## 2. *Road Segment Project Funding Mechanisms*

While interchange projects will benefit a larger geographic region, arterial roadways have more localized benefits, and therefore should be funded using a more individualized approach. The GID can continue to serve as the administrator of collected revenues and can ensure that roads are constructed according to the district's prioritizing criteria. The funding methods described below in combination with the GID can be further leveraged by using city bonding capacity. The project team has identified \$80.6 million in arterial roadway improvement projects that can be funded with the methods identified below; of this, \$24.9M would be necessary to construct the high priority projects.

- **Payments-in-lieu** – As discussed previously, modifications to the traditional adjacency funding approach can be used to adequately fund arterial roadways. The GID can collect payments-in-lieu for the adjacent roadway segments. Payments can be scaled based on development-specific roadway infrastructure demand. The revenues can then be used to fund transportation projects according to the prioritization criteria; and funds can be allocated across the entire study area to ensure the most efficient roadway network is completed to induce and support development. The GID can construct roads incrementally, focusing on connecting key nodes in the study area with 2-lane cross-sections, before eventually expanding the road to the build out cross-section.
- **Impact Fees** – The City of Aurora currently levies a capital expansion impact fee on new residential developments that can be used to fund transportation infrastructure improvements related to growth. The transportation portion of the fee ranges between \$350 and \$498 per unit depending on the type of development. Typically impact fee revenues are used for general growth related projects throughout the city; however, a GID can administer the fee revenues to specifically address the needs of the district. All revenues collected within the district can be directly used to fund infrastructure within its boundaries. In order to speed development, the current transportation impact fee revenue paid in the study area could be dedicated to the GID to support arterial road and other growth-related infrastructure development.

The funding mechanisms described above are targeted to equitably distribute the burden of transportation funding according to the proportional benefit from the identified improvements. There was initial stakeholder support for forming a district that would collect and use additional property tax revenues to fund the larger, mutually beneficial interchange projects. Road segment projects would not benefit all landowners equally and therefore should not be funded through the same general process, but through proportional fee rates based on each development's characteristics.

Forming a GID can help ensure that all funds raised within the district are used to address specific priorities for infrastructure demand within the area. At the end of the evaluation process, the Stakeholder Group was pleased with this proposed balance of funding.

## 3. *Other Options for Enhanced Road Financing*

The proposed funding strategy could be modified or enhanced to include some of the following additional funding mechanisms:

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- **Public Improvement Fee** – A public improvement fee (PIF) is a private fee that is applied to sales transactions that occur within a specific development area. The fee is administered by the developer or a private third party rather than the city. Since it is an additional private transaction fee, the PIF is still subject to sales tax. All PIF revenues are used to fund private improvements within the development. In the area south of DIA, development plans include approximately 7.9 million square feet of retail space.
- **Tax Increment Financing** – Tax Increment Financing (TIF) is a unique mechanism that enables an Urban Renewal Authority to use the “net new” tax revenues generated by projects within a designated urban renewal area to assist with the finance of public improvements. Initial discussions with Aurora representatives did not favor use of this funding option for this area; however, it may be worth exploring in the future.
- **Sales Tax Sharing Agreements** – Several cities in Colorado enter private agreements with developers to dedicate a share of future sales tax revenues to fund eligible public improvements. These improvements are often transportation related. These sharing agreements are often implemented when a new retailer locates in a city that stops sales tax leakage rather than cannibalizing existing retail sales in the city.

The above alternative revenue mechanisms were discussed with the Stakeholder Group and the city and were ultimately deemed to be best utilized as secondary funding methods, if necessary.

#### ***E. Revenue Modeling***

After the appropriate revenue generation strategy and administrative institution were selected, the following assumptions were used to model select revenues.

- **Straight-line development timing** – The project team worked with property owners to compile the development plans within the area. Timing of these developments is still uncertain; therefore, in order to project revenues over time, this analysis assumed a straight-lined pace of development. Build-out is assumed to occur within the next 30 years.
- **General Improvement District** – The GID is assumed to only include the study area. Options to expand the district south of I-70 should be explored, although this study did not gauge those landowners’ willingness to be incorporated into a GID. The revenue modeling assumes the GID will impose an additional 3 mills.
- **Property Values** – Revenue generated by the mill levy imposed by the GID is dependent on property values within the area. Property values per square foot of office, retail, and industrial space are assumed to be \$150, \$100, and \$80, respectively. Based on Adams County assessor data, the average actual value per residential unit is \$179,400. Hotel rooms are valued at approximately \$76,000 per room, according to industry averages.
- **Oil and Gas** – While oil and gas production is likely to occur within the area, it is not included in the revenue model due to the uncertain nature of production quantity and timing. Real property tax revenues may therefore be higher than shown in this model.

**Figure 7** shows property tax revenue projections based on the formation of a GID and assumptions described above. In addition to the property tax revenue, it is assumed that

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developers will collectively contribute between \$6.5 million and \$9.3 million in residential impact fees; and \$79.6 million in road segment project improvements through fee-in-lieu contributions. Given the magnitude of the capital investment required for the improvement projects, there will likely be a revenue shortfall. The city should work with the landowners and CDOT to identify potential future city and CDOT financial participation.

**Figure 7. Potential Property Tax Revenue from GID**

	Year 1*	Year 5	Year 10	Year 15	Year 20	Year 25	Year 30
<b>Development Plans</b>							
Dwelling Units	-	3,104	6,208	9,313	12,417	15,521	18,625
Retail sq.ft.	-	1,059,136	2,118,272	3,177,408	4,236,544	5,295,680	6,354,816
Hotel Rooms	-	1,157	2,314	3,471	4,628	5,785	6,942
Office sq.ft.	-	3,248,297	6,496,594	9,744,891	12,993,188	16,241,485	19,489,782
Industrial sq.ft.	-	4,886,566	9,773,132	14,659,699	19,546,265	24,432,831	29,319,397
<b>New Property Tax (3 mills)</b>							
Dwelling Units	-	\$133,000	\$266,000	\$399,000	\$532,000	\$665,000	\$798,000
Retail sq.ft.	-	92,000	184,000	276,000	369,000	461,000	553,000
Hotel Rooms	-	77,000	153,000	230,000	306,000	383,000	459,000
Office sq.ft.	-	424,000	848,000	1,272,000	1,696,000	2,120,000	2,543,000
Industrial sq.ft.	-	340,000	680,000	1,020,000	1,360,000	1,701,000	2,041,000
<b>Annual Total</b>	-	<b>\$1,066,000</b>	<b>\$2,131,000</b>	<b>\$3,197,000</b>	<b>\$4,263,000</b>	<b>\$5,330,000</b>	<b>\$6,394,000</b>
<b>Cumulative Revenue</b>		<b>\$3,197,000</b>	<b>\$11,721,000</b>	<b>\$25,574,000</b>	<b>\$44,754,000</b>	<b>\$69,264,000</b>	<b>\$99,105,000</b>

Note: \*Construction assumed to take one year. Development timing and property tax revenues are lagged accordingly.

## IV. SUMMARY OF RECOMMENDATIONS

### A. *Priority Projects*

Stakeholder interviews have indicated that inadequate transportation infrastructure is an existing barrier to development within the City of Aurora south of DIA. With the goal of accelerating development, this study has focused on determining a list of high priority projects for implementation in the study area. This planning process involved cataloging existing transportation infrastructure, evaluating the existing and future needs, and developing a list of 21 projects most likely to accelerate short-term land use development. These projects have been ranked using qualitative and quantitative measures to yield a final recommendation list consisting of high priority regional interchange projects and local road segment projects. The complete process has been described in **Chapter 2** and the resulting high priority projects are shown on **Figure 8**.

High priority projects have been consolidated to five main areas within the study limits. Each of these project groups is listed below with a short description.

1. **Construction of 64<sup>th</sup> Avenue and Picadilly Road** – These project corridors will increase mobility within the study area north of 56<sup>th</sup> Avenue by upgrading current gravel roads to paved roads. Regional connectivity will also be enhanced with 64<sup>th</sup> Avenue accessing E-470 via the existing interchange.
2. **Construction of 48<sup>th</sup> Avenue and Harvest Road** – These project corridors will create access within the core of the study area by providing needed local access and with the completion of the interchange at E-470.
3. **Picadilly Road Interchange with I-70** – This interchange will provide direct access to the study area from I-70 west of E-470.
4. **Harvest Road Interchange with I-70** – This interchange will provide direct access to the study area from I-70 east of E-470.
5. **Watkins Road Interchange with I-70** – This interchange improvement provides better access to the eastern portion of the study area and includes improvement of SH 36.

Totaled the high priority interchange projects and road segment projects planning level cost estimates are \$78.1M and \$24.9M, respectively.

### B. *Funding Plan*

In order to speed development in the area and enhance funding of the above and other priority projects in the study area, the following emerged as a preferred funding plan. The primary uses for each funding sources are listed in **Table 4**.

- Continuation of existing infrastructure funding practices, including residential impact fees and direct developer funding of adjacent arterial roads.
  - Formation of a general improvement district (GID) with property taxation powers to fund collectively beneficial infrastructure improvements including:
    - Interstate interchanges
    - Grade-separated railroad crossings
-

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- Drainage facilities
- **GID to serve as primary administrative entity for transportation funding in the study area:**
  - GID to impose mill levy as primary funding mechanism
  - Developers would contribute payment-in-lieu of adjacent arterial construction to the GID
  - Transportation impact fees collected in the study area dedicated to the GID
  - GID will fund transportation projects according to prioritization criteria to allocate funds across the entire study area
  - GID will construct roads incrementally, focusing on connecting key nodes in the study area with 2 or 4 lane cross-sections
  - Complete cross-sections will be constructed once necessary
- **Other options to consider for enhanced road financing include:**
  - Public improvement fee
  - Tax increment funding
  - Sales tax sharing agreements
- **Interstate interchange projects benefit a larger area and it is important to explore potential inclusion in the GID of a broader area, particularly south of I-70**

The city should strongly consider using its bonding capacity in tandem with the above funding plan to effectively accelerate infrastructure construction and induce private residential and commercial development in the study area. An organized and collaborative funding plan can then be effectively leveraged to attract outside funding from state or federal sources.

**Table 4. Funding Sources and Primary Uses Summary**

	GID / Property Tax	Impact Fees	Developer Payment in Lieu	Public Improvement Fee	Tax Increment Financing	Sales Tax Sharing Agreements
Interstate Interchanges and Railroad Crossings	✓	✓			✓	
Arterial Roadways		✓	✓	✓	✓	✓

Note: Property taxes can also be used to support arterial roadways, although its primary purpose in the funding plan is for highway interchange and railroad crossing funding.

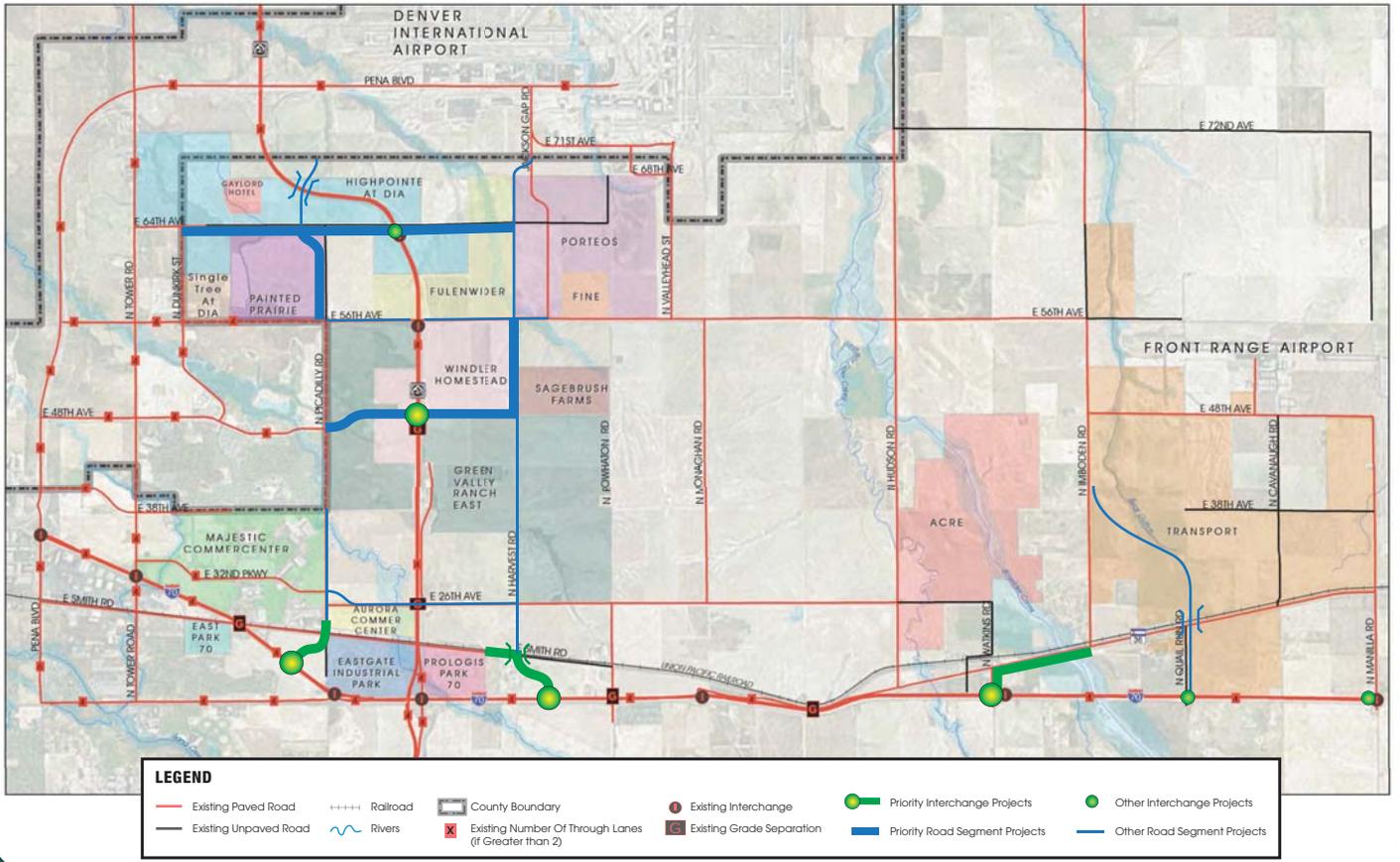


Figure 8  
High Priority Projects



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