# S. M. Wright Project – Phase II-B

TIGER Discretionary Grant Application

April 2014
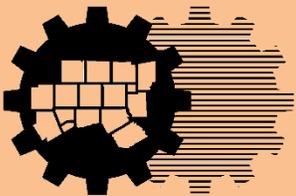
North Central Texas Council of Governments

Transportation Department

TIGER DISCRETIONARY GRANT PROGRAM
Project Application

Name of Project: S. M. Wright Project – Phase II-B

Agency Submitting Project: North Central Texas Council of Governments (MPO)

Other Project Parties: Texas Department of Transportation (Implementing Agency)

Primary Contact:
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Type of Project: Road and Bridge (IH 45 and thoroughfare improvements)

Project Location:
      City: Dallas
      County: Dallas County
      State: Texas
      Congressional Districts: District 30 (Rep. Eddie Bernice Johnson)

      Type of Jurisdiction: Urban Area

TIGER Funds Requested: $13,000,000

Total Project Cost: $26,000,000

DUNS Number: 10-246-2256

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List of Exhibits

List of Abbreviations

ACS   American Community Survey

ADT   Average Daily Traffic

BLS   Bureau of Labor and Statistics

CBD   Central Business District

DART   Dallas Area Rapid Transit

EA   Environmental Assessment

FHWA   Federal Highways Administration

HUD   Housing and U rban Development

IH   Interstate Highway

MPH   Miles Per Hour

MLK   Martin Luther King Jr. Blvd

MPO   Metropolitan Planning Organization

MTP   Metropolitan Transportation Plan

MWSBE   Minority-owned, Women-owned and Small Business Enterprises

NCTCOG   North Central Texas Council of Governments

NTTA   North Texas Tollway Authority

PMIS   Pavement Management Information System

RTC   Regional Transportation Council

SH   State Highway

STIP   Statewide Transportation Improvement Program

TCD   Traffic Control Device

TCEQ   Texas Commission on Environmental Quality

TIP   Transportation Improvement Program

TxDOT   Texas Department of Transportation

US   United States Highway

I.   Project Description

This S. M. Wright Project is located in the City of Dallas, Dallas County, Texas. As the metropolitan planning organization (MPO) for the Dallas-Fort Worth area, the North Central Texas Council of Governments (NCTCOG) is responsible for planning and coordinating transportation projects in this area. The project is in an urbanized area and is located immediately south of the City of Dallas Central Business District (CBD). Exhibit 1 shows the location of the S. M. Wright Project in relation to Dallas County, NCTCOG, and the State of Texas.

Exhibit 1: S. M. Wright Project Location
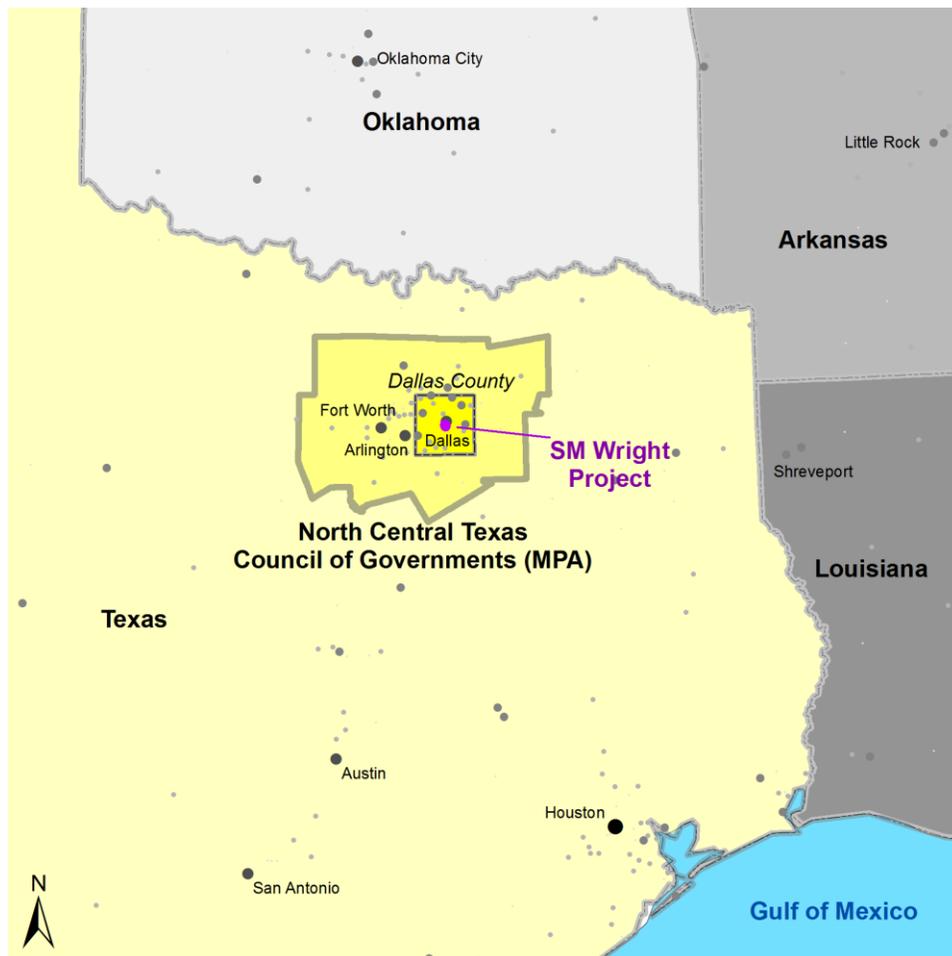
In the project area, US 175 has two separate named segments commemorating the lives of local minister and community leader S. M. Wright and Texas Highway Commissioner C. F. Hawn. S. M. Wright Freeway begins south of downtown Dallas at IH 45 and runs in a southeasterly direction intersecting with SH 310.

The S. M. Wright Project has evolved into three distinct phases for environmental clearance and construction. FY 2014 TIGER Discretionary Grant funding is requested only for the S. M. Wright Project – Phase II-B. Exhibit 2 shows the context and phasing of the S. M. Wright Project. A brief overview of the purpose and interrelationship of the

three Phases follows. The purpose of Phase I is to provide a direct connection from existing US 175 and C.F. Hawn Freeway to IH 45. Following the opening of Phase I, Phase II-A will repurpose US 175 from a grade separated six-lane urban freeway to a low speed, six-lane thoroughfare section, providing for landscaping amenities and a trail/bike system. Together, Phase I and II-A will reknit an African American neighborhood that was divided when US 175 was constructed during the 1950s. The Phase I and II-A projects were environmentally cleared together and received a Finding of No Significant Impact in September 2013. Phase 1 construction will begin during the second quarter of 2014; Phase II-A will begin construction in the second quarter of 2017. Phase 1 and II-A represent an investment of $165 million dollars by the Texas Department of Transportation (TxDOT).

Exhibit 2: S. M. Wright Project Area
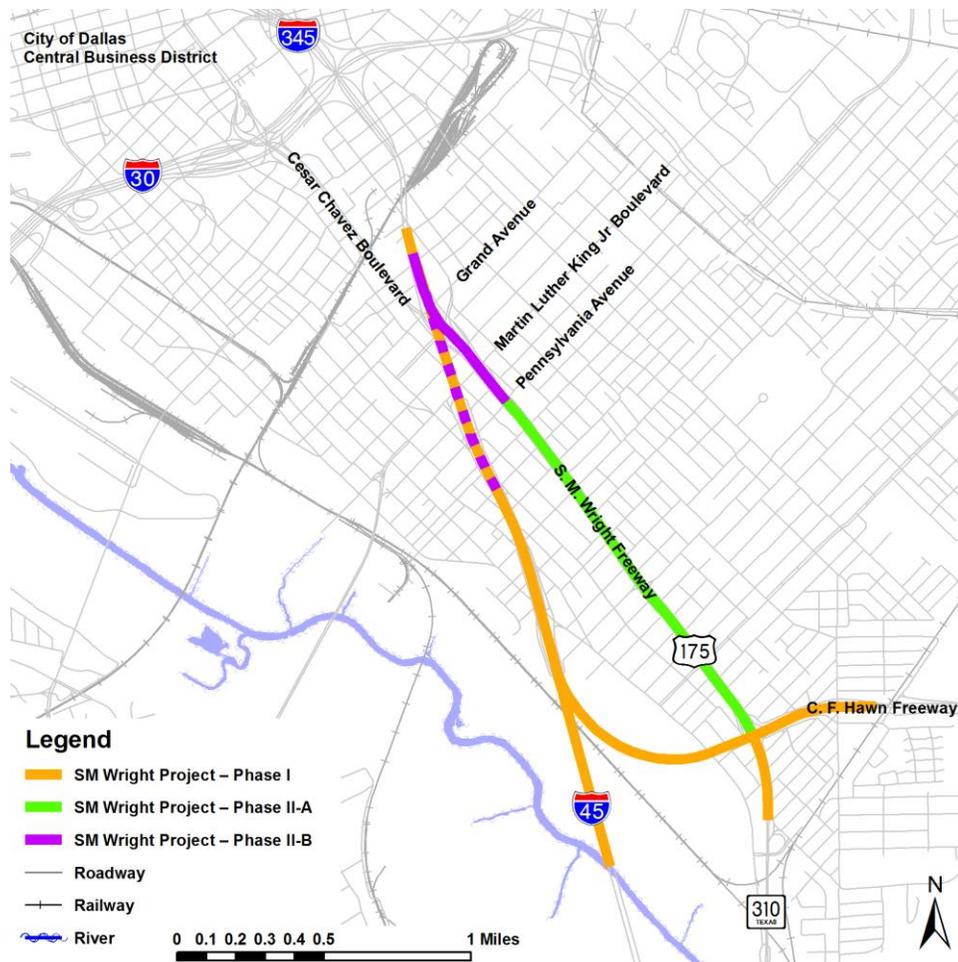
While Phases I and II-A serve to reknit a divided community, the purpose of Phase II-B is to further stimulate and foster economic development in the Fair Park / South Dallas area. Currently, IH 30, an east-west freeway through Dallas, provides the only direct interstate access into this area. Phase II-B would provide direct north south interstate access from IH 45 into the Fair Park/South Dallas area. In addition, Phase II-B proposes to eliminate

the weaving ramp system near IH 45, occurring in the area bounded by Grand Ave. and Martin Luther King Jr. (MLK) Blvd. Exhibit 3 is an aerial view of the developable areas which may result with the implementation of Phase II-B. The location and the amount of developable land will be contingent on the Alternative selected. Exhibits 4 and 5 are, respectively, Preliminary Phase II-B, Alternatives A and B.

Exhibit 3: Potential Redevelopment Areas

Exhibit 4: S. M. Wright Phase II-B Preliminary Alt A
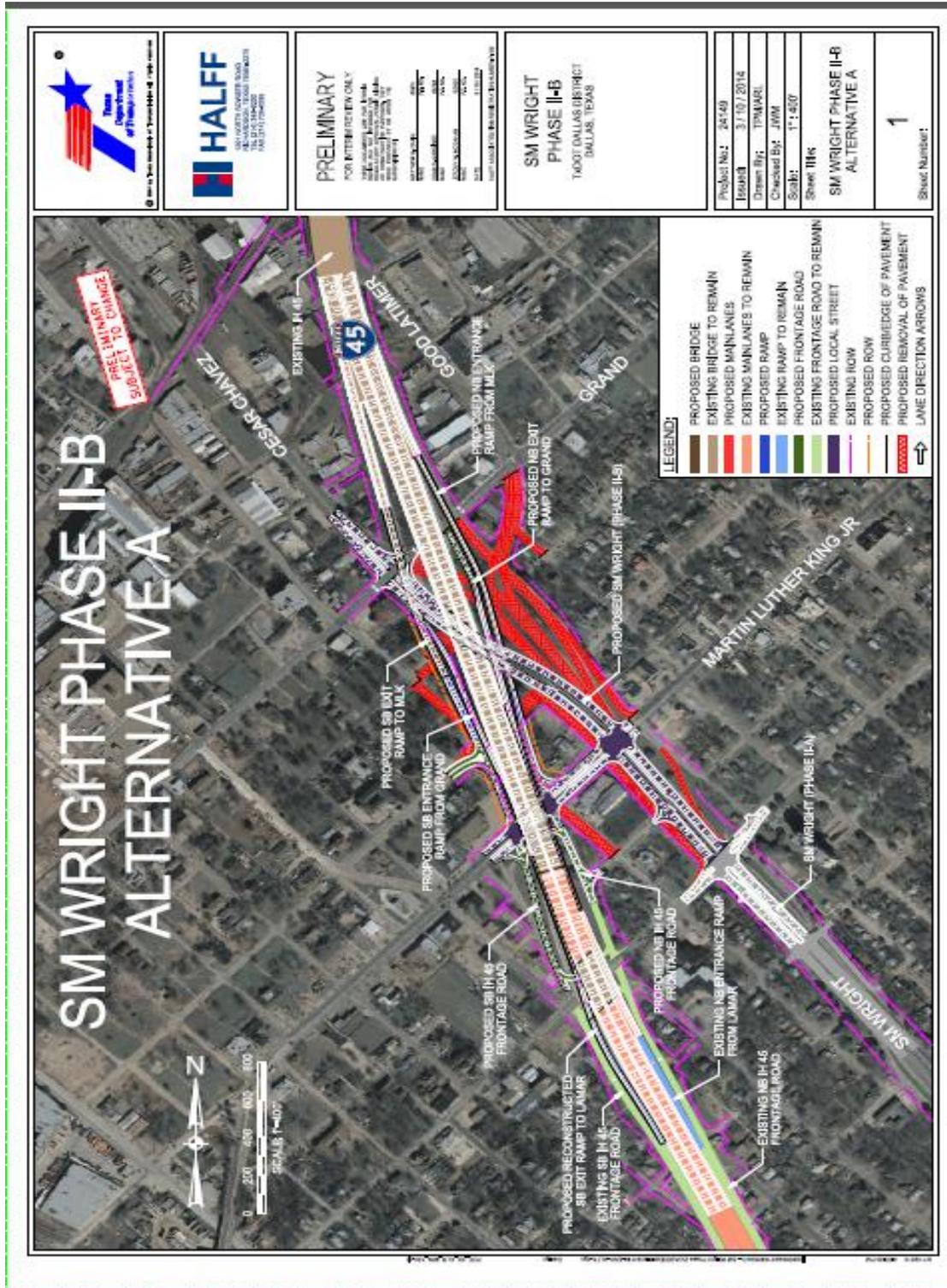
Exhibit 5: S. M. Wright Phase II-B Preliminary Alt B

Source: TxDOT – Dallas District and Halff Associates, April 2014

The S. M. Wright Project–Phase II-B would connect the north end of the newly repurposed S. M. Wright Parkway (a six-lane thoroughfare, resulting from Phase II-A) to Cesar Chavez Boulevard, providing a seamless path for residents near S.M. Wright Parkway to the employment centers, Exhibit 6, educational opportunities, and recreational facilities in the City of Dallas Central Business District (CBD). The interweaving access ramps that move freeway traffic between the existing S. M. Wright Freeway and IH 45 would be replaced with a 6-lane local arterial connection. IH 45 access would be transitioned to a split diamond interchange with Grand Avenue for accessing the neighborhoods from the south and with MLK Blvd. for access from the north. The IH 45 frontage roads would be extended north from their current terminus south of MLK Blvd. to simplify travel patterns in the project area.

Exhibit 6: Major Employers

Map Date: April 2014 Source: NCTCOG
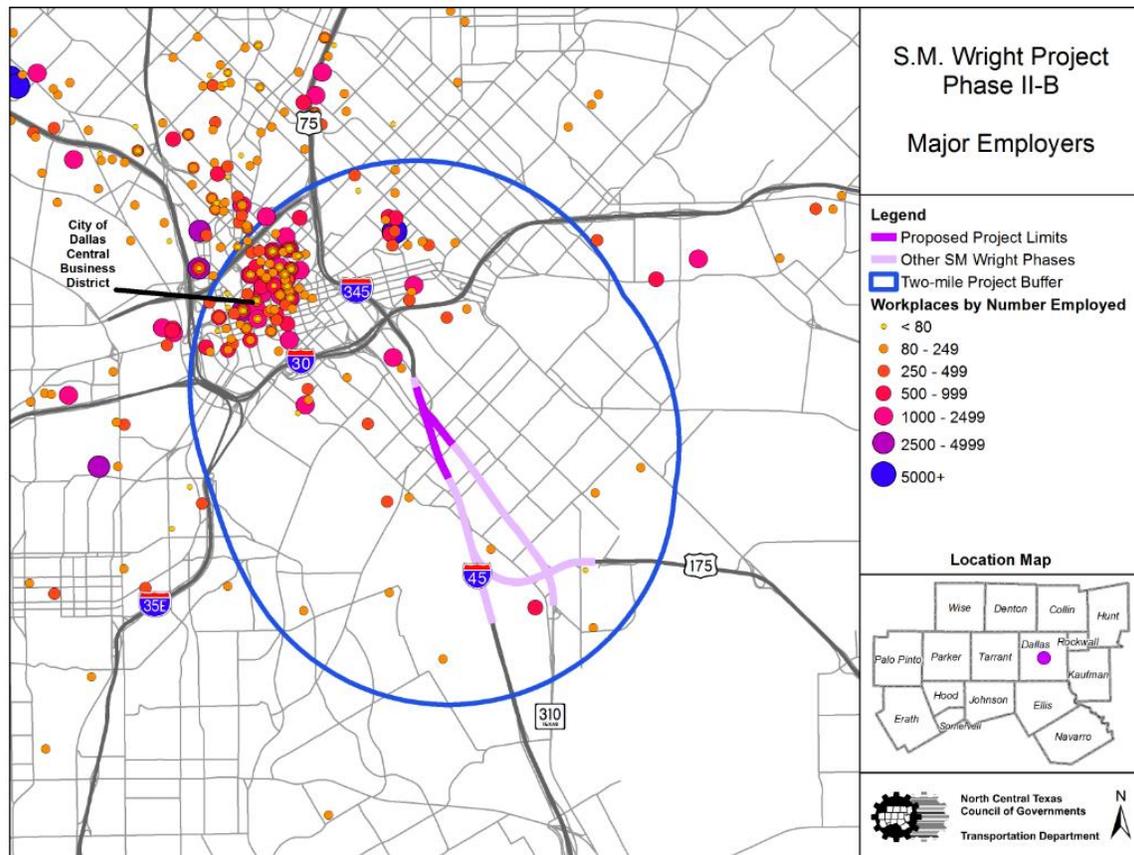
The Phase II-A freeway-to-parkway conversion will allow for the inclusion of numerous context sensitive design elements such as enhanced pavement to denote neighborhood gateways, landscaping, pedestrian walks and trails, and opportunities for public art. To ensure continuity in appearance between phases, the same aesthetic amenities package will be used in both Phase II-A and Phase II-B.

Major transportation infrastructure improvements in South Dallas/Fair Park are not limited exclusively to highways. The opening of Dallas Area Rapid Transit's (DART) Green Line and light rail stations at Fair Park and MLK Blvd. occurred in September 2009. In addition, the area is served by major transit bus routes, along IH 45, US 175, and MLK Blvd. Relative to transportation system management improvements, a large number of signalization projects are proposed in this area, and are listed in the region's approved 2013–2016 Transportation Improvement Program. (TIP)

Socio-Economic Context
US 175 serves local, urban, and suburban travelers and is an integral component of the regional transportation network. As stated above, US 175 is also a major bus route for DART. TxDOT ADT volumes for 2010 traffic counts on US 175 (C. F. Hawn Freeway and S. M. Wright Freeway) and IH 45 are approximately 82,000 and 69,000 vehicles per day, respectively. Projected 2035 traffic volumes on the two facilities are expected to increase to 166,000 for US 175 and 160,000 for IH 45. The downsized S. M. Wright Parkway (to be accomplished during Phase II-A) is expected to carry 57,500 vehicles per day in 2035, or about 30 percent less traffic than the S. M. Wright Freeway carries today.

While the project area is predominantly residential in character with commercial/light industrial facilities along Lamar Street, IH 45, and near the US 175/SH 310 interchange, it is zoned for mixed-use development. The neighborhoods within the project area are home to both low-income and minority (environmental justice) populations and the area is economically distressed. Exhibit 7 shows the unemployment rates in the zip codes (75210 and 75215) for the project area compared to other areas in Texas.

Exhibit 7: Unemployment Rate in the Project Area
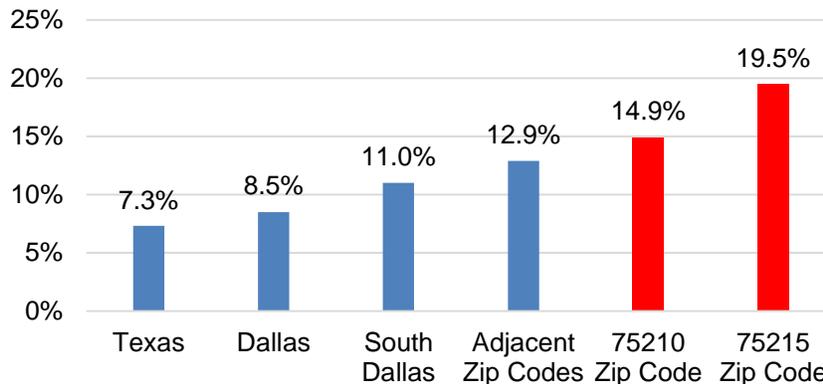
Source: American Community Survey 5-year Estimates (2007-2011)

This area's per capita income ranges between $12,008 and $16,884; in comparison to the national per capita income of $27,915 according to the 2007-2011 ACS. Based on the low per-capita income and high unemployment rates, the project area meets the statutory definition of an economically distressed area [42 U.S.C. 3161 § 301(a)]. See Exhibit 8; Median Income Map.

In comparison to resident per capita income above, per capita income of commuter traffic on US 175 was closer to the City of Dallas worker median earnings of $39,765 for those who drive alone and $24,973 for carpoolers. The marked disparity in income and unemployment rates is clearly understood by residents of this area, and underscores their drive to bring redevelopment and employment opportunities to their community.

Exhibit 8: Median Income Map

Map Date: April 2014 Source: US Census Bureau (American Community Survey 2008-2012 5-Year Data by Census Tract)
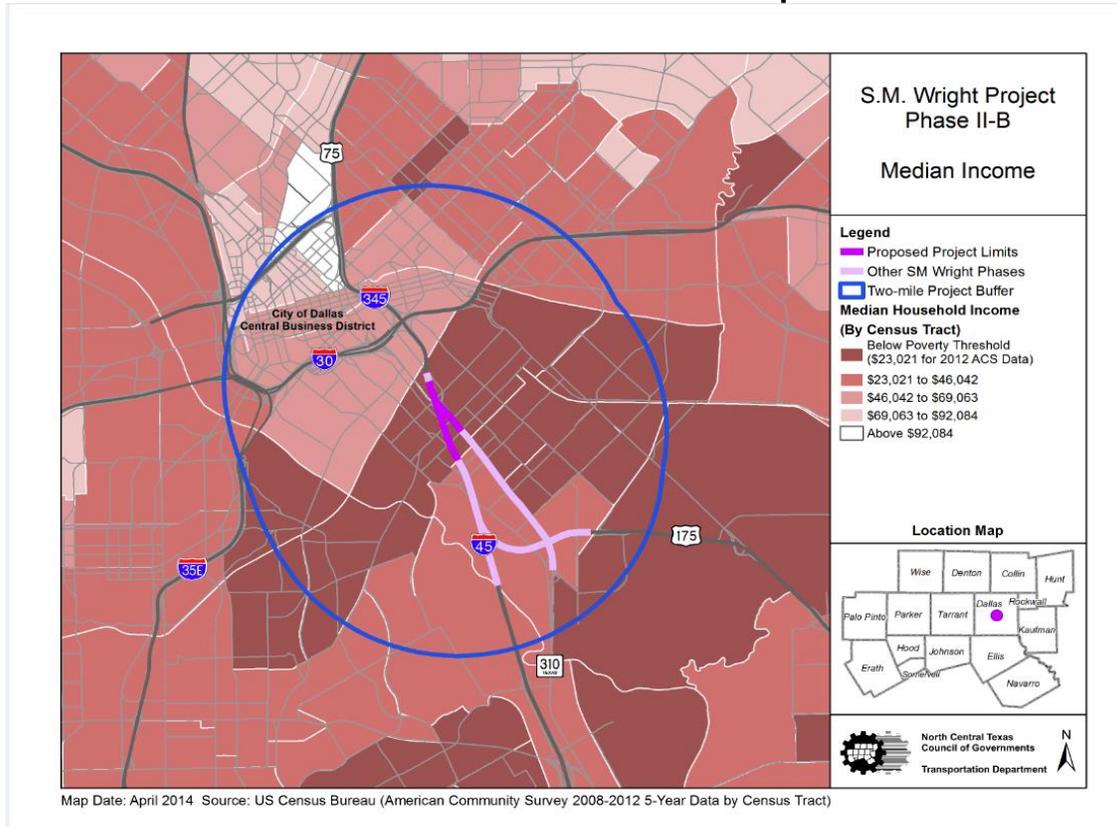
As the concept of the Phase II-B ramps evolved during 2013 community meetings on the Phase I and II Environmental Assessment, it cannot be claimed that it is an integral element of any long standing, coordinated, economic development plan. However, Phase II-B's lack of longevity does not diminish its potential benefits of additional interstate access and acreage for redevelopment. The City of Dallas' Office of Economic Development has, and continues to focus on opportunities in South Dallas/Fair Park. These efforts are anchored by four tax increment finance (TIF) districts in and around the area; Cedars (1992), Grand Park South (2005), Deep Ellum (2005), and the Fair Park Transit Oriented Development (TOD) TIF (2008). The Fair Park TOD will anchor development for the west side of Fair Park, an area which has seen $111 million in public investment since 2000. Exhibit 9 graphically illustrates the existing TIFs and various City of Dallas developments which may be served through the addition of the proposed IH 45 ramps. Note in particular that the proposed IH 45 ramps provide more direct interstate access to developments east and west of IH 45.

Exhibit 9: Area Developments
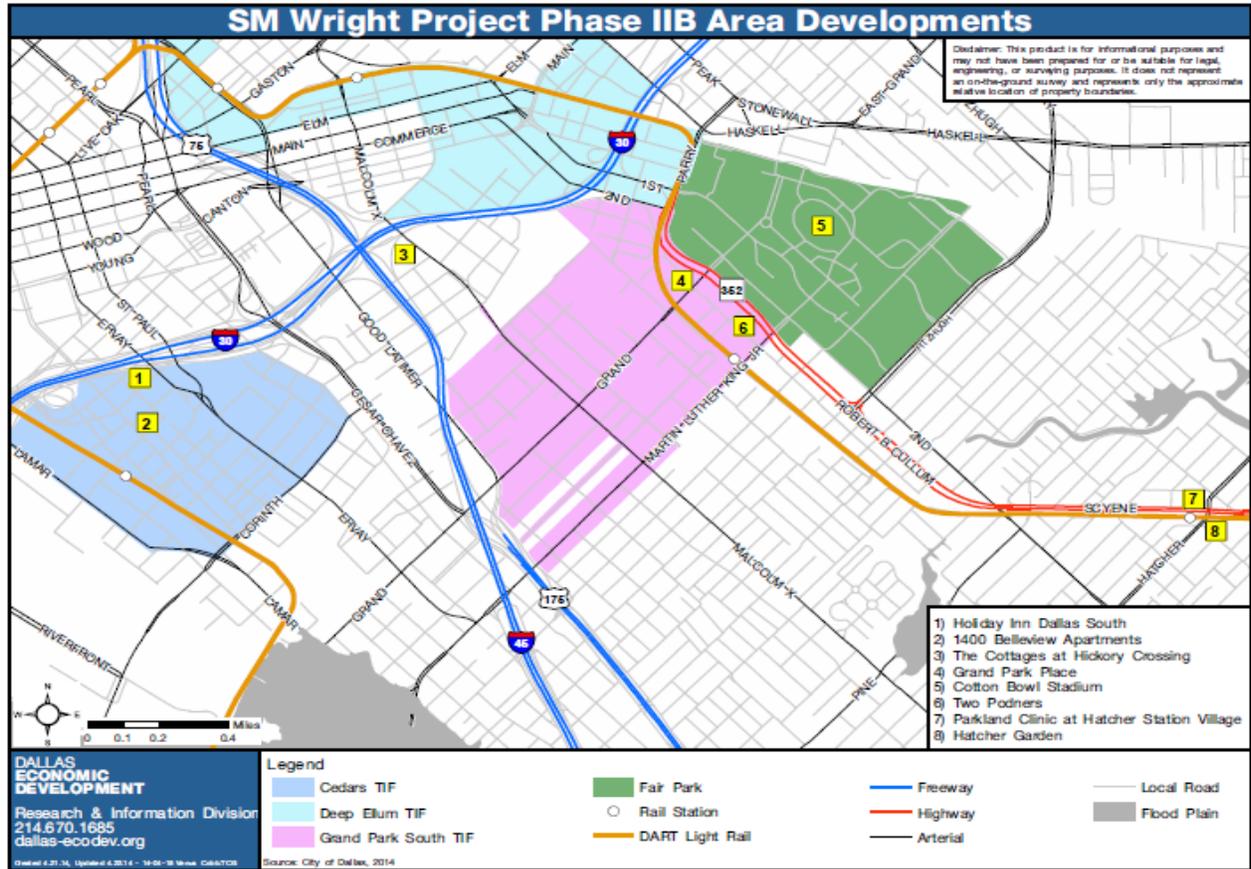
Exhibit 10 is a tabular summary of the area's developments. Dallas' financial commitment to this area can be construed from the funding dedicated in grants [Housing and Urban Development (HUD), Dallas Development Fund, etc.], and total project costs, respectively, $28,375,000 and $71,800,000.

Exhibit 10: Current Development Projects

SM Wright Phase II Development

Current Area Development Projects

| Project Name	Address/Neighborhood	Funding Source	Amount	Total cost	Type/outcome
7. Hatcher Square Village	Hatcher Station	HUD-Sustainable Communities Grant	$200,000	$19,000,000	Pre-construction funds to support FRI and Parkland Clinic Development.
8. Hatcher Gardens	Hatcher Station	HUD-Sustainable Communities Grant	$100,000	$2,000,000	10 apartments, first floor retail. Funded predevelopment expenses
7. FRI/Parkland	Hatcher Station	Dallas Development Fund	$15,000,000	$19,000,000	NMTC allocation to support Parkland Clinic (Council 4.23.14)
3. City Square	I-30 and Malcolm X	Dallas Development Fund	$12,500,000	$14,000,000	Expansion/consolidation of City Square offices and services, including LIFT, Americorp, food pantry, and Workforce Solutions
4. Urban Mixed Use	MLK Station	HUD-Sustainable Communities Grant	$200,000	$16,000,000	36 apartment units; currently under construction. Funds were for predevelopment.
6. Two Podners of	RB Cullum (Near Grand)	Fair Park Trust fund Public Private Partnership	$100,000 $275,000	$1,800,000	construction funds and purchase signage/equipment - commercial strip expansion
3. The Cottages	Malcolm X and I-30		$1,500,000	$8,200,000	Construction Permanent Supportive Housing

Source: City of Dallas, Office of Economic Development, April 2014

Targeted Transportation Challenges

South Dallas and Fair Park contain a variety of venues including, but not limited to, Texas Discovery Gardens, African American Museum, Children's Aquarium, the Musical Hall and the Fair Park Band Shell and host a variety of activities during the year, the largest being the Texas State Fair during September and October, and the Texas and OU football game. These venues and activities generate fluctuating demands on the existing transportation system.

In addition to demands resulting from special events or trip purposes (school outings/field trips), the area's transportation system also accommodates daily demands originating from: commuters utilizing US 175, IH 45, and the major thoroughfares to/from and through the Dallas CBD; transportation demands associated with the three area employers with employees numbering between 250 and 499, Cowboy Cab Company, Faubion Associates, Inc., and Renaissance Hospital of Dallas; freight movements whose warehouse destinations are clustered along IH 30 and Lamar Ave; and a number of magnet schools located east of IH 45 and south of IH 30.

During peak periods, the primary users of the IH 45 and US 175 facilities are commuters who live outside the project area and freight vehicles.

Exhibit 11 results from a travel demand model and graphically illustrates the potential utilization of the proposed ramps, relative to regional origins and destinations, during the AM peak period, in 2018.

Exhibit 11: 2018 AM Peak Period Origins and Destinations

The DFX model estimates that 7,300 trips would use the four new IH 45 ramps to MLK Jr. Blvd. and Grand Ave. during a typical weekday morning.
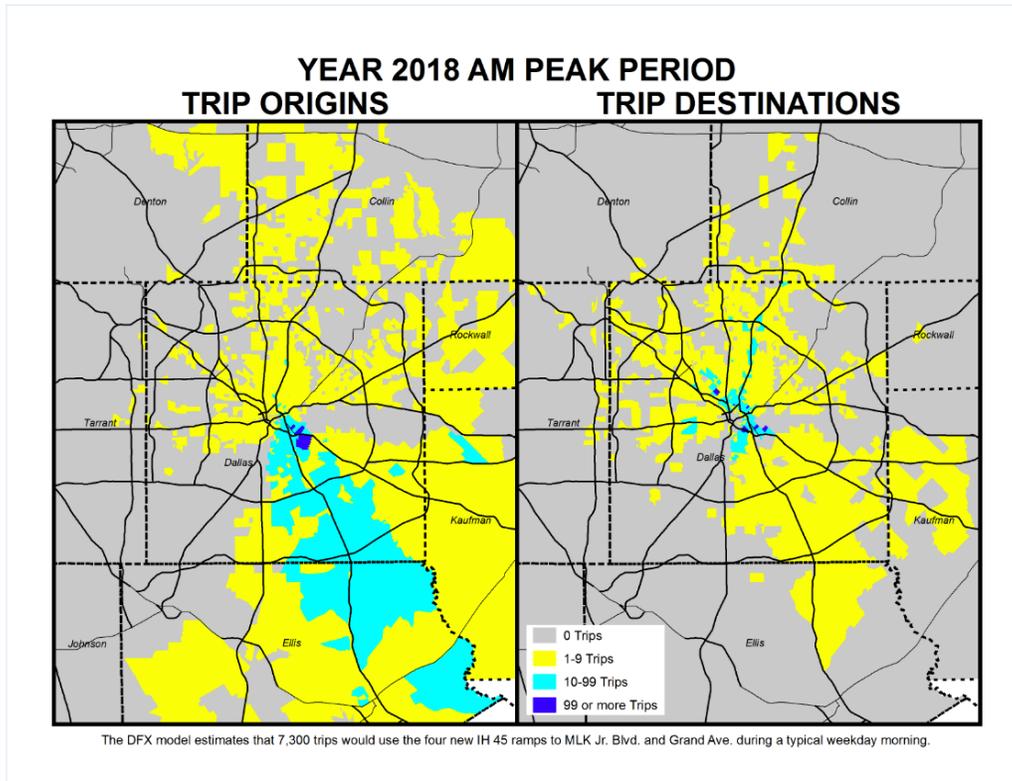
In the S. M. Wright Project Environmental Assessment, the northern limits of Phase II-A terminated just south of MLK Blvd. This maintained the current 'weaving' access to IH 45, Cesar Chavez Blvd, and Good-Latimer Expressway, which preserves the numerous conflict zones for vehicles and pedestrians, additional obstructions to economic development, and acts as a deterrence to walkable neighborhood

Challenges Addressed

Implementation of Phase II-B will eliminate the existing high-speed, high-volume connector ramps from IH 45 to the converted S. M. Wright parkway facility. Instead, new ramps will be built adjacent to the current IH 45 viaduct right-of-way for direct access to/from the north at MLK Blvd., connecting seamlessly to the IH 45 frontage road connections to/from MLK Blvd., built in Phase I. This will permit the full S. M. Wright parkway conversion to extend north to Cesar Chavez Blvd. at its intersection with Grand Avenue. The conversion will include replacing the current S. M. Wright/MLK Blvd. grade separation with a signalized at-grade intersection where local vehicular and pedestrian access to adjacent properties can more effectively occur in all four quadrants. This overall

configuration allows commuter traffic to be rerouted around the urban neighborhoods via IH 45, into areas more appropriate for high traffic volumes and higher speeds, and it enables the anticipated social and environmental benefits of the project to be realized within this environmental justice community.

Additionally, Phase II-B addresses the safety implications and limited parcel accessibility caused by the interweaving access ramps north of MLK Blvd., See Exhibit 3. The ramps are eliminated in favor of the direct arterial connection between the converted S. M. Wright parkway facility and Cesar Chavez Blvd., and access to/from Good-Latimer Expressway is performed via signal-controlled intersections at Grand Avenue. Though not as direct as what the interweaving ramps provide currently, the at-grade connections are more appropriate given the projected lower volumes of the converted parkway facility. In addition, they enable direct local access to/from adjacent land parcels which improve economic development opportunities. Furthermore, the Phase II-B ramp removals provide the opportunity for new ramp connections between Grand Avenue and IH 45 to/from the south. This restores US 175 freeway access that originally occurred via the S. M. Wright corridor, but can now occur directly and more prominently from IH 45 as a result of the previous S. M. Wright Project construction phases. This will open up alternate access to/from major regional events at nearby Fair Park (location of the State Fair of Texas and the Gexa Energy Pavilion) and create more economic redevelopment prospects for surrounding neighborhoods.

Alternatives Considered

There are currently two proposed alternatives being considered for Phase II-B of the S. M. Wright Project. However, the alternatives differ only in regards to the proposed northbound IH 45 exit ramp to Grand Avenue. Alternative A, Exhibit 4, depicts the ramp intersecting Grand Avenue at a mid-block location adjacent to the IH 45 viaduct crossing between Cesar Chavez Boulevard and Good-Latimer Expressway. Traffic in this alternative would only have the choice to turn east or west on Grand Avenue for access to other roadways in the area. Alternative B, Exhibit 5, shows the ramp connecting to Grand Avenue at its intersection with Good-Latimer Expressway. This alternative allows traffic to proceed directly north on Good-Latimer Expressway in addition to turning east or west on Grand Avenue. While no alternative has been formally selected as of the writing of this TIGER application, and projected cost and/or benefit differences between the two options are minimal, analysis below is based on the development of Alternative B.

II. Project Parties

a. North Central Texas Council of Governments (Submitting Agency)

NCTCOG is a voluntary association of cities, counties, school districts, and special districts established in January 1966 to assist local governments in planning for common needs, cooperating for mutual benefit, and coordinating for sound regional development. NCTCOG serves a 16-county metropolitan region comprised around the two urban centers of Dallas and Fort Worth.

b. Texas Department of Transportation (Implementing Agency)

The Texas Legislature originally established TxDOT in 1917 as the Texas Highway Department. This project is located in the TxDOT–Dallas District which plans, designs, builds, operates and maintains the state transportation system in the following counties: Collin, Dallas, Denton, Ellis, Kaufman, Navarro, and Rockwall.

III. Grant Funds and Sources/Uses of Project Funds

Exhibit 12 details the funding sources of the project. Exhibit 13 details the estimated costs of the project that would be funded through this TIGER Discretionary Grant. All costs are in 2012 dollars. As noted earlier, public input identified deficiencies in the local access provided by the project. The additional ramps along IH 45 and associated intersection improvements are included to provide critical local access to these neighborhoods. The estimated cost of those ramps is $26 million, the amount of this FY2014 TIGER Discretionary Grant request is $13 million.

Exhibit 12: S. M. Wright Project – Phase II-B Funding Sources

Funding Source	Type	Funding Amount	Percent
State and Regional	TxDOT	$3,250,000	
State and Regional	State	$1,950,000	
Total of Non-Federal Funding Sources		**$5,200,000**	**20%**
State and Regional	STP-MM	$7,800,000	
Federal	TIGER Discretionary Grant Request	$13,000,000	
Total of Federal Funding Sources		**$20,800,000**	**80%**
TOTAL PROJECT FUNDING		**$26,000,000**	

Exhibit 13: S. M. Wright Project – Phase II-B Cost Estimate

Cost Category	Total Cost	Funding Source	
		Non-Federal (Percent)	Federal (Percent)
Preliminary Engineering	$0		
Right of Way Acquisition	$0		
Utilities	$0		
Construction Engineering	$0		
Construction	$26,000,000	20%	80%
TOTAL PROJECT COST	**$26,000,000**		

a. Technical Feasibility

The designs generally adhere to FHWA and TxDOT design standards, though some design exceptions may be requested based on the preliminary design schematics. The designs are technically feasible and the project does not include any unusual design elements. In addition to standard construction techniques, innovative clean construction techniques and green concrete would be used (see Section IV.c – Innovation). The innovative elements would not pose any technical challenges.

b. Financial Feasibility

Funds to fully implement the project were identified and approved in April 2014. During the January 2013 Public Hearing for the Phase I and II-A EA, and a final August 2013 Public Hearing, consensus was reached to provide the desired access along IH 45 in the vicinity of Grand Avenue. The estimated cost of these ramps and associated thoroughfare improvements is $26 million and $13 million is requested in 2014 TIGER Discretionary Grant funding. The receipt of TIGER funds would allow local elected and transportation officials to complete the necessary improvements which were not identified during the environmental clearance of S. M. Wright Phases I and II-A

NCTCOG currently manages federal as well as state-administered grants that are in various stages of development, implementation, and closeout. In fiscal year 2013, NCTCOG facilitated expenditures of $24.1 million from various multi-year federal grants including awards from the Department of Energy, Environmental Protection Agency, Federal Transit Administration, Federal Aviation Administration, US Department of Housing and Urban Development, Department of Labor, and the Department of Defense. Also in fiscal year 2013, NCTCOG facilitated expenditures of $128.2 million from various state-administered grants including awards from the Texas Commission on Environmental Quality, Texas Department of Health, Texas State Energy Conservation Office, and TxDOT. The NCTCOG Transportation Department employs 19 fiscal and grant professionals who provide financial, legal, and compliance support for projects funded from various grants.

No adverse audit findings from standards used by states, local governments, and non-profit organizations expending federal awards (Circular A-133) have been determined at this time. NCTCOG has not been required to comply with special "high risk" terms and conditions under agency regulations in the implementation of consistency and uniformity in the management of grants and cooperative agreements with state, local, and federally-recognized Indian tribal governments (OMB Circular A-102).

c. **Project Schedule**

Exhibit 14: Project Schedule

S. M. Wright Project II-B Implementation Phases	COMMENTS	2014 Q1	Q2	Q3	Q4	2015 Q1	Q2	Q3	Q4	2016 Q1	Q2	Q3	Q4	2017 Q1	Q2	Q3	Q4	2018 Q1	Q2	Q3	Q4	2019 Q1	Q2	Q3	Q4
Activities																									
Pre-Construction Activities																									
Planning Requirements — STIP Listings	*2013-2016 TIP, Approved 11.01.12*																								
Phase II-B	TIP Aug 2014 Rev Cycle																								
Environmental Clearance – NEPA				■	■	■	■	■	■ Clr																
HAZMAT Clearance – Phase II-B	None Anticipated																								
Design					■	■	■	■	■																
Right of Way																									
ROW Acquisition									■ ■																
Utility Relocation									■ ■																
Construction																									
Earthwork											Let	■	■												
Structures														■	■	■	■	■							
Pavement																	■	■	■	■	■				
Lighting, Signage, and TCD																			■	■	■				

Meets Federal, State & Local Requirements by 06-30-16

d. Assessment of Project Risks and Mitigation Strategies

Exhibit 15: Project Risks and Mitigation Strategies

S. M. Wright Project Phase II-B Milestones	Achieved or Pending – Clarification	Financial Commitment	Evidence that Milestone will be completed by June 30,2016	Risk	Risk Mitigation
Pre-Construction Activities					
TIP/STIP Listing	Pending	Surface Transportation and Technical Committee (STTC) action	Highway Project will be included in the August 2014 Revision Cycle of the 2013-2016 TIP	None	NA
Environmental Clearance, Final Environmental Assessment, and Receipt of FONSI	Pending – expected by 4th Quarter 2015	TBD	EA Percent Complete - 0% Schematic Percent Complete - 0%	Known /potential obstacles: Potential 4(f) – a Fire Station, located at the south east corner of Park Row Ave and South Harwood Street is eligible for listing on the NRHP. The City of Dallas plans to relocate this structure to Pennsylvania Ave between Edgewood and Kimble Streets. Construction contracts are to be awarded late 2014.	TxDOT District leadership is conducting intensive public involvement to ensure concerns are addressed. Extensive conversations continue to occur with, but not limited to, US Representative Eddie Bernice Johnson, Texas Senator Royce West and Texas Rep Yvonne Davis, to confirm their satisfaction with the proposed IH 45 access solution. In 2013, TxDOT assumed FHWA's NEPA responsibilities, in hopes of streamlining NEPA project approvals. Precedent exists for FHWA and TxDOT staffs coordinating efforts and concurrent reviews to secure environmental clearance by a targeted date – the Horseshoe Project in Dallas, Texas being the premier example. TxDOT District is confident environmental clearance will occur, on or before the targeted date. .
Design	TBD	TBD	TBD	TBD	TBD
Right of Way Acquisition and Utility Relocation	Pending – expected by 3rd Quarter 2017	For improvements along MLK Blvd., as well as where IH 45 ramps connect to existing thoroughfares some takes by be necessary.		Known /potential obstacles: Final acquisition contingent on receipt of Hazardous materials clearance.	Work may begin at the north end of the project, so project letting will not be delayed.
Construction Activities					
General Construction	TBD	TBD	TBD	TBD	TBD

e. Performance Monitoring

Based on the primary and secondary criteria presented in this application, Exhibit 16 lists performance measures for evaluating the success of this project.

Exhibit 16: Performance Monitoring

	Short-Term (2 to 5 years) Performance Measure	Long-Term (5 to 40 years) Performance Measure
Primary Selection Criteria		
State of Good Repair	• PMIS rating above 70 • Lower maintenance costs	• PMIS rating above 70 • Lower maintenance costs
Economic Competitiveness	• Decrease in unemployment in the region and project area during construction • Utilize Parcels (7.5 ac) re-purposed from transportation use, for redevelopment	Within the project area: • Increased median income compared to 2010 census data • Decrease in the poverty rate • Lower unemployment rate compared to 2009
Livability	• Stabilization of the community conditions and character • Increased accessibility of disabled persons and pedestrians • Compliments Complete Streets designation for MLK Blvd. and Grand Ave. • Traffic calming	• Increased community retail and commercial development • Increased community cohesion • Increased community pride and character • Traffic calming
Environmental Sustainability	• Decreased traffic delay, fuel consumption, CO_2 emissions • Increased travel speeds	• Decreased traffic delay, fuel consumption, CO_2 emissions • Increased travel speeds
Safety	• Decrease in the number and severity of accidents • Decrease in the number of fatalities	• Decrease in the number and severity of accidents • Decrease in the number of fatalities
Project Readiness	• Timely environmental clearance, right of way acquisition, permitting, letting, and construction of project	
Secondary Selection Criteria		
Innovation	• Job training/placement through the RJOPP program • Use of Clean Construction Techniques during construction • Use of Green Concrete in structures	• Implementation of the master plan for S. M. Wright Freeway
Partnership	• Evidenced by $ 276 million worth of investment in area. • Continued partnership in the redevelopment of the area	• Continued partnership in the redevelopment of the area

IV. Selection Criteria

The following sections illustrate that the project aligns with each of the primary and secondary selection criteria. All costs and benefits are reported in constant 2012 dollars.

a. Primary Selection Criteria

A key component of the project benefit-cost analysis (BCA) was an early identification of a wide range of potential direct and indirect benefits associated with this project, whether those benefits are subjective or objective in their nature. The following table, Exhibit 17, provides a snapshot of these project benefits and how they each relate to the five long-term outcomes as requested by the US Department of Transportation. The primary quantifiable benefits of this project are in the areas of state of good repair, economic competitiveness, and safety.

Exhibit 17: Identification of Project Benefits

Primary Selection Category	Projected Benefit
State of Good Repair	**Lowers maintenance costs**
	Reduces frequency of construction and repair
	Extends pavement life
Economic Competitiveness	Supports Regional Job Opportunity Pilot Program
	Reduces roadway and freight operating costs
	Promotes travel time savings
	Reduces freight shipping costs
	Creates economic development opportunities
	Enhances access to downtown Dallas
	Fuel savings for roadway users, including freight
	Creates construction jobs due to project (short term)
	Supports long-term job creation
Quality of Life	Promotes alternate modes of travel
	Impacts land use changes
	Increases local accessibility and creates alternate routes
	Reduces congestion on the roadway system
Environmental Sustainability	Shifts air quality and noise impacts to non-residential areas
	Increases reliability of system
	Reduces both recurring and nonrecurring congestion
	Air quality benefits through reduced emissions (NO_X/VOC/CO_2)
Safety	**Reduces costs from crashes, including injuries and fatalities**

NOTE: The benefit-cost analysis (BCA) quantifies the benefits from items in **bold**.

i. State of Good Repair

This project will increase the state of good repair of the transportation infrastructure of the United States over the medium and long-term by replacing an aging and obsolete access ramp system with a modern urban thoroughfare. The benefits of the project on the state of good repair include reduced overall maintenance costs, reduced frequency of construction and repair, and longer pavement life. There is insufficient data to calculate the benefits from reduced construction/repair frequency and longer pavement life, so the only benefit quantified for the BCA is the reduced overall maintenance cost.

The S. M. Wright Freeway was built in the 1950's and the pavement and structures are reaching the end of their design life. Replacing the outdated interchange and updating the facility to meet current design and safety standards will require minimum maintenance expense for decades after the new facility is constructed. The new roadway would be compatible with current maintenance practices, affording safe and efficient maintenance operations as required by law for the use of Federal highway funds, thus reducing life-cycle costs.

The S. M. Wright Phase II-B project implements a road-diet concept that converts a complicated access ramp system into an urban arterial. This will create a more functional and context-sensitive urban thoroughfare network. The project reduces the overall paved footprint of transportation infrastructure in the project area from by approximately two acres. The expected $13,750 annual maintenance cost savings associated with the smaller footprint and simplified roadway geometry reduces the life-cycle cost of transportation infrastructure within the project area. The calculations of the maintenance cost reduction benefit are included in the BCA. The net present value of the maintenance savings to the City of Dallas and TxDOT is $106 thousand assuming a discount rate of seven percent and $183 thousand assuming a discount rate of three percent.

ii. Economic Competitiveness

This project will increase economic competitiveness of the United States over the medium and long-term by encouraging development, increasing accessibility and creating jobs in an economically distressed area. The direct economic competitiveness benefits come from the smaller right-of-way needed for transportation infrastructure in the project area. The project will link the reconfigured S. M. Wright Parkway to Caesar Chavez Boulevard creating seamless access between the neighborhoods and downtown Dallas. It will also establish direct access to IH 45 from Grand Avenue and MLK Blvd. These improvements yield indirect benefits including reduced freight shipping costs, additional travel time savings, and new economic development opportunities. The Regional Job Opportunity Pilot Program (see Section IV.b.i – Innovation for a full description) is an effort to leverage short-term construction jobs on the project into long-term careers for economically disadvantaged workers in the project area.

Much of the right-of-way currently dedicated to access ramps connecting S. M. Wright Freeway to IH 45 and the local thoroughfare network would be returned to other uses. The City of Dallas and TxDOT currently own this right-of-way. After the S. M. Wright Project – Phase II-B is implemented, the stock of developable land in the project area will be increased by approximately 8 acres. The estimated value of this land, based on the land value of commercial and industrial parcels in the area, is $1.0 million. The calculations of the value of the developable land are included in the BCA. The net present value of the land is $740 thousand assuming a discount rate of seven percent and $900 thousand assuming a discount rate of three percent.

Economic development benefits from the project also stem from increased access to jobs and customers for the residents and businesses in the project area. Travel model forecasts show that approximately 3.5 percent more jobs are within a 15-minute drive of the intersection of S. M. Wright Parkway and MLK Blvd. after the project is implemented. This effect was present in both the 2018 and 2035 travel demand forecasts. The increased access is expected to increase the value of the residential and commercial land in the project area by a similar percentage. The estimated value productivity increase is $1.6 million. The calculations of the increased value land in the project area are included in the BCA. The net present value of the land productivity increase is $1.1 million assuming a discount rate of seven percent and $1.4 million assuming a discount rate of three percent.

This project would lead to travel time savings by replacing a complicated access ramp system with a simplified thoroughfare network. Travel model results indicate that the project provides very minor benefits to region-wide roadway and freight operating costs, travel times, freight shipping costs reductions, and fuel savings. These benefits were not quantified to ensure a conservative estimate of the benefits from the project.

As with all infrastructure improvements, this project would create construction jobs in the short-term. Based on the Council of Economic Advisers' (CEA), September 2011 determination that a job-year is created by every $76,900 in transportation infrastructure spending, this $26 million dollar project (including the requested $13 million TIGER Grant funds) would generate approximately 338 job-years. This number is inclusive of onsite jobs and additional employment in other industries due to the multiplier effect. Benefits from short-term job creation were not included in the BCA, because some or all of these benefits would have to be considered transfer benefits.

The project will provide residents the opportunity to acquire highway construction skill-sets and ultimately living-wage jobs. As previously stated, the current classification of S. M. Wright as an urban freeway is not conducive to economic growth or revitalization. This project, in conjunction with other projects proposed by the City of Dallas and the community such as land use planning and flood control improvements, is intended to spur economic development in the project

area. In addition, the Regional Job Opportunity Pilot Program (see Section IV.b.i – Innovation) is an effort to leverage short-term construction jobs on the project into long-term careers for economically disadvantaged workers in the project area.

iii. Quality of Life
This project promotes the livability of adjacent neighborhoods by placing priority on enhancing community character, cohesion, social interaction, safety, economic prosperity, and general quality of life. Among the ways this project impacts community quality of life are promoting alternate modes of travel, impacting land use changes, increasing local accessibility, creating alternate routes, and reducing congestion on the roadway system. Many of these benefits are qualitative, so they are not included in the overall calculation of benefits from the project.

As described earlier, the S. M. Wright Project – Phase II-B creates more efficient paths for motorists traveling to and from communities in South Dallas, southern Dallas County, and better access to major employment centers such as the Dallas CBD and the Medical/Market Center. The project also concentrates traffic onto IH 45, improving the air quality and reducing noise impacts of regional traffic on the local neighborhood. The project will complete the aesthetic redesign on the S. M. Wright Parkway begun with Phases I and II-A.

The new design will also provide safer, more reliable routes for DART buses. The community immediately surrounding the project is one of the most transit dependent areas of Dallas. According to 2010 Census data, over 15 percent of the population is over 64, nearly 60 percent are disabled, and almost 37 percent of the households have no vehicles. The use of public transit is 360 percent more than that of the City of Dallas as a whole.

The current designs of the access ramps and frontage roads connecting S. M. Wright Freeway to IH 45 are outdated and do not comply with the Americans with Disabilities Act requirements or complete streets guidelines. The redesigned transportation infrastructure will increase bicycle/pedestrian safety at the intersections of S. M. Wright Parkway with Grand Avenue and MLK Blvd. Both of these intersecting streets are being redesigned based on complete street concepts and implementing S. M. Wright Project – Phase II-B will complement these efforts to improve the quality of life for area residents.

iv. Environmental Sustainability
The environmental sustainability benefits include increasing reliability and efficiency of the transportation system, reducing both recurring and nonrecurring congestion. The project is likely to improve energy efficiency, lessen dependence on oil, and reduce greenhouse gas emissions. The air quality benefits from reduced congestion were not quantified to ensure a conservative estimate of the benefits from the project. The other environmental sustainability benefits are generally qualitative and could not be included in the calculation of benefits based on the data currently available.

v. Safety

Safety is a primary concern in replacing the access ramp system with an urban thoroughfare. The speed on the S. M. Wright Parkway would be substantially reduced compared to the existing conditions. The local street network will be simplified by brining S. M. Wright Parkway up to match the surrounding neighborhood, with the addition of continuous IH 45 frontage roads across MLK Blvd. In addition, traffic safety on the IH 45 main lanes will be improved as auxiliary lanes are added to this stretch of highway. Removing the obsolete access ramps will discourage IH 45 traffic from continuing to use S. M. Wright Parkway as a regional thoroughfare. By encouraging more traffic to stay on IH 45, the overall regional transportation safety is improved because limited access facilities are relatively safer than local thoroughfares.

The annualized direct safety benefit to vehicles traveling through the project area ranges from $3.6 million to $3.7 million. This improved safety comes from several sources: reducing speeds and traffic levels on S. M. Wright Parkway, calming traffic on local roads by simplifying access and reducing the speed on the major thoroughfare; and adding auxiliary lanes and shifting traffic to IH 45. The calculations of the direct safety benefits associated with these improvements are included in the BCA. The net present value of the improved safety within the project area due to design improvements in the project area is $28.9 million assuming a discount rate of seven percent and $46.5 million assuming a discount rate of three percent.

The additional regional safety benefit from transitioning users from lower functional classification roadways to higher functional classification roadways is about $460,000 when the project opens, increasing to $1.7 million by the end of the 20-year project life. The calculations of the regional safety benefits associated with the new access ramp are included in the BCA. The net present value of the regional safety benefits of shifting traffic to higher functional class facilities is $6.2 million assuming a discount rate of seven percent and $10.9 million assuming a discount rate of three percent.

b. Secondary Selection Criteria

i. Innovation

The proposed project would include three innovative elements to pursue the long-term outcomes outlined in the selection criteria. The City of Dallas and NCTCOG plan to use the S. M. Wright Project, including Phase II-B as a pilot project for a jobs training program to help disadvantaged workers in the project area learn skills and find work in the construction industry. Also, the project would be implemented using clean construction techniques and utilize green concrete to increase environmental sustainability.

Regional Jobs Opportunity Pilot Program

The project's location is distinctive in that it is in an economically distressed area, as well as within a predominantly African-American community and the Colonial Hill Historic District. In an effort to specifically target job creation in disadvantaged neighborhoods, the Regional Transportation Council (RTC), the policy board of the MPO, allocated funding in January 2013 to support a Regional Jobs Opportunity Pilot Program (RJOPP). As provided for in the RTC's action, the S. M. Wright – Phase I project would launch the RJOPP. The program's goal is twofold:

i) to increase minority contractors' competitive effectiveness for highway construction jobs through more effective mentoring/training; and

ii) to address the issue of unemployment and under-employment by recruiting area residents in various highway construction job categories to be employable on transportation construction jobs.

Given the project's unique location, the project area has been the subject of both regional and local planning studies by diverse interest groups concerned with land-use planning and economic development. At the regional level, the *Balanced Vision Plan for the Trinity Corridor* is a conceptual master plan developed by the City of Dallas in 2003 for extensive development of recreational facilities and flood control. The *South Dallas/Fair Park Economic Development Corridor Plan* identified eleven "project opportunity areas" that would help spur local revitalization efforts; four of these commercial nodes for redevelopment are within the project corridor. The S. M. Wright Project – Phase II-B and the RJOPP are both consistent with the City of Dallas' Growth South initiative and work toward the redevelopment of South Dallas. The projects encourage the creation of public-private partnerships that generate and sustain jobs.

A successful jobs program at the regional level requires the integration of a broad spectrum of expertise from governmental and non-governmental entities. The FHWA and TxDOT Offices of Civil Rights are being consulted as the final structure of the program is finalized. Currently, the participating governmental agencies include: the City of Dallas, TxDOT - Dallas District, Workforce Solutions Dallas, and the North Central Texas Council of Governments. Private entities include: Association of General Contractors Texas, Literacy Instruction for Texas (LIFT), CitySquare (a community based organization), and Cornerstone Baptist Church.

For the job categories identified below, a jobs program leading to certification was jointly developed by the Associated General Contractors of Texas and TxDOT; successful program participants will complete the program with a Journeyman skill-set recognized by highway contractors throughout the state. Job placement will be focused on those job categories which will be utilized for the majority of a project's life, and will exclude seasonal or phase-dependent jobs. These jobs include, but are not limited to, concrete finishers, form setters, reinforcing steel workers, and pipe layers. Placing area residents in these jobs is expected to stimulate economic activity in South Dallas. Based upon Texas Counties wage rate zones, as well as wage rates for Dallas County (as of January 6, 2012), wages for program participants would range between approximately $11.01/hour and $17.68/hour.

Enhanced mentoring and training opportunities for MWSBE contractors will be coordinated with TxDOT and the NTTA Cooperative Inclusion Plan (see www.ntta.org/procurement/busdiv/programs/Pages/Cooperative-Inclusion-plan.aspx). Through focused mentoring efforts for MWSBE contractors, based upon Business Action Plans developed for each contractor, success rates at winning TxDOT highway construction contracts are anticipated to improve.

During the next three years, the total amount of construction for other TxDOT projects in close proximity to South Dallas amount to $1.7 billion. Approximately $8.3 billion dollars are projected to go to construction within the TxDOT–Dallas District during the same timeframe. This will provide ample opportunity for RJOPP trainees to secure a living-wage. The multi-billion dollar investment in highway construction projects, with construction taking three to five years or more, will allow program participants to create a track-record of success. In addition, RJOPP participants will be in a position to take over for the approximately 30 percent of the current workforce of skilled highway construction workers who (according to BLS estimates) will be eligible for retirement in the next 5 to 10 years.

In conclusion, the award of a $26 million 2014 TIGER grant will complement on-going regional efforts to provide the unemployed and under-employed disadvantaged residents with marketable job skills to earn a living wage.

Clean Construction Techniques
As the MPO of an ozone nonattainment area, the NCTCOG Transportation Department works to develop air quality control strategies that reduce emissions of criteria pollutants associated with ozone formation, specifically NO_X. In recent years, NCTCOG staff has been investigating potential strategies to address emissions from construction equipment, which contributes approximately eight percent of ozone-forming NO_X emissions in North Central Texas, according to preliminary modeling conducted by TCEQ. Staff has determined that contract specifications which include emissions-related requirements on public works or other construction projects may be one of the more promising strategies to reduce emissions.

The negative impacts associated with diesel pollution from construction equipment utilized in roadway projects have been recognized at the federal level. Though it was not passed, the Clean Construction Act of 2011 focused on reducing particulate matter (PM) emissions from construction equipment. The NCTCOG Clean Construction Specification is similar in nature to this legislation. However, rather than PM, the local requirements target reductions in NO_X, which is the primary determinant of ozone formation in the Dallas-Fort Worth ozone nonattainment area. To set a regional example, take a leadership role, and increase sustainability benefits of this project, NCTCOG will incorporate a Clean Construction Specification on this project. The Clean Construction Specification will help mitigate emissions associated with construction equipment utilized during the construction phase of this project. The specification will require use of construction equipment which meets Tier 2 or better emissions standards, with certain exemptions for situations where such equipment is not practicable (e.g. equipment which is seldom used, equipment brought on-site in an emergency situation). Operational requirements, such as idling limitations, will also be in place. Up to one percent of the total project cost may be utilized to help offset additional project expenses associated with contractors' compliance with this requirement.

Green Concrete
In October 2006, The North Texas Clean Air Steering Committee (NTCASC), a committee of the NCTCOG Executive Board, passed a resolution requesting that local governments in the nonattainment area give special consideration to purchasing cement sourced from cement kilns which meet lowest emissions levels. This measure was passed as another strategy to work toward reducing ozone-forming emissions, specifically NO_X. During construction of this project, NCTCOG will also include a requirement that all cement used in the project be sourced from a kiln which meets an emission rate of 1.7 pounds of NO_X per ton of clinker or less. This requirement will ensure that cement is sourced from a kiln which is using a lower-emitting production process compared to industry counterparts.

ii. Partnership
The S. M. Wright Project – Phase II-B project demonstrates a strong commitment to collaboration with a broad range of participants, including integration between transportation planning, implementation, and other public service efforts.

a) Jurisdictional and Stakeholder Collaboration
The public consensus to extend C. F. Hawn Freeway to IH 45 and downsize S. M. Wright Freeway was achieved through a five-year joint study by the City of Dallas, community stakeholders, and TxDOT. The residents and neighborhood leaders in this area have been very active in community development and revitalization. The master plan for S. M. Wright Freeway produced for the City of Dallas study is available at www.nctcog.org/trans/tip/private/ 175concept.pdf. This master plan outlines how the conversion of S. M. Wright

to an arterial and subsequent surplus right-of-way can provide community benefits by:

- Eliminating the segregating roadway and overhead bridges
- Buffering the road from adjacent neighborhoods through landscaping
- Installing a pedestrian/bike trail
- Doubling the size of an adjacent city park (Kimble Park)
- Expanding parking at an adjacent retirement home

This project has and will continue to have strong support from elected officials, the City of Dallas, and the community. The connection of US 175 to IH 45 and the reconstruction of S. M. Wright Freeway as an arterial are supported by the City of Dallas *Trinity River Corridor Comprehensive Land Use Plan*, March 2005. The S. M. Wright Project will help the city and community redevelopment goals to revitalize this area by opening up areas (such as the South Lamar Industrial District) to a new generation of development opportunities.   The transportation elements included in the S. M. Wright Project – Phase II-B were developed in response to public comments received during environmental clearance of Phases I and II-A.

b) Disciplinary Integration
The city and community are looking forward to the neighborhood rejuvenation, improved quality of life, and safety-related opportunities provided by both the proposed S. M. Wright Project – Phase I and the freeway-to-parkway conversion that will start with S. M. Wright Project – Phase II-A and can be completed with S. M. Wright Project – Phase II-B. They feel this new, highly anticipated project will benefit existing and future residents, in the form of job creation, business opportunities, retail availability, and enhanced neighborhood character.

The Regional Jobs Opportunity Pilot Program (RJOPP) (see Section IV.b.(i) – Innovation) represents an integrated effort between multiple disciplines. Public sector participants include: the City of Dallas, TxDOT - Dallas District, Workforce Solutions Dallas, and the North Central Texas Council of Governments. The participating private entities include: Association of General Contractors Texas, Literacy Instruction for Texas (LIFT), CitySquare (a community based organization), and Cornerstone Baptist Church.

c. Results of Benefit-Cost Analysis
The benefits described in previous sections were monetized in the BCA Appendix. The benefits of the project documented in the BCA are shown in Exhibit 18. The net present value of the S. M. Wright Project – Phase II-B is shown in Exhibit 19. Applied to a total project cost of $26 million, a substantial net benefit is achieved for both discounting scenarios. Based on a project life of 20 years, the overall effect of this transportation investment will result in a positive **lifetime net benefit** of **$39.6 million**

at three percent and **$17.2 million** at seven percent, after netting out the cost of the project. The calculations used to determine these totals are discussed in more detail in the BCA.

Exhibit 18: Total Project Benefits

Benefit Category	Benefits 7% Discount Rate	Benefits 3% Discount Rate
Maintenance Savings	$106,227	$182,836
Economic Competitiveness	$1,887,880	$2,284,058
Geometric Crash Reduction	$28,856,733	$46,491,652
Crash Reduction	$6,190,340	$10,936,312

Exhibit 19: Net Project Benefits

Discount Rate	Net Present Value of Total Benefits	Rounded Net Present Value of Total Benefits	Return on Investment
7 Percent	$17,249,828	$17.2 million	66 percent
3 Percent	$39,615,396	$39.6 million	152 percent

The overall net effect of this transportation investment will result in a positive lifetime **return on investment** of **152 percent** ($39.6 million/$26 million) and **66 percent** ($17.2 million/$26 million), after discounting at three percent and seven percent, respectively. The results of this BCA clearly indicate that this project will provide a lifetime of benefits to the region and will substantially improve the quality of life for its residents.

The BCA used conservative estimates of the benefits of the project to avoid double-counting. The documented benefits do not include many benefits to the community and to the nation stemming from the project due to the difficulty of developing specific quantitative methods to estimate them. In addition to the benefits documented in the BCA, the project would provide benefits that can only be estimated qualitatively. Those benefits include reduced traffic noise and emissions in the neighborhoods along S. M. Wright Freeway as some commuter traffic is routed directly to IH 45.

V.   Planning Approvals, NEPA, and other Environmental Reviews/Approvals

a. NEPA Status

The environmental clearance for S. M. Wright Phase II-B will begin during the second quarter of 2014. As the level of impacts and potential controversy is anticipated to be small, it is assumed that the project will require an environmental assessment.

Status of NEPA Process: Briefings to various state and local officials continue, prior to initiating public outreach. The Public Hearing for the environmental assessment is anticipated to occur during the third quarter of 2015.

Anticipated Environmental Clearance: A Finding of No Significant Impact (FONSI) is anticipated to be issued by TxDOT during the fourth quarter of calendar year 2015.

The Texas Department of Transportation has assumed FHWA's NEPA responsibilities and will have oversight authority on the project.

Description of Needed Federal Actions
The project requires design approval from the FHWA, including completion of an Interstate Access Justification (IAJ) Report. A Section 4(f) permit may also be needed for the project. As these permits and certifications are typically required for many highway projects, and as TxDOT is well-experienced in securing them, no difficulties are foreseen in obtaining them.

b. Legislative Approvals

Legislative approvals are not required for this project.

c. State and Local Planning

Local Planning
This project is the result of a collaborative planning effort of the City of Dallas, TxDOT, and NCTCOG. The connection of US 175 to IH 45 and the reconstruction of S. M. Wright Freeway as an arterial are included in the City of Dallas *Trinity River Corridor Comprehensive Land Use Plan*, March 2005.

TIP/STIP Status
S. M. Wright Phase II-B will be included in the August 2014 TIP modification cycle. A project construction cost of $26,000,000 will be shown. Should the project receive TIGER Grant funds, the project entry will be updated.

Metropolitan Transportation Plan
The project will be added to the region's *The Metropolitan Transportation Plan for North Central Texas.* Because Dallas County is classified as nonattainment of ozone,

transportation conformity applies. The project will be included in a conforming MTP and the STIP.

Statewide Transportation Plan

This project will be included in the *Unified Transportation Plan* and the *Statewide Long-Range Transportation Plan* based on the project's inclusion in the TIP and MTP. This project supports the major goals of both statewide planning documents, including congestion relief, improved safety, air quality, and quality of life, enhanced economic opportunities, and streamlined project delivery.

VI. Federal Wage Rate Certification

NCTCOG supports entities that comply with federal labor laws. Any procurement activities sponsored by these entities require compliance with all federal, state, and local laws. In addition, in order to qualify for incentives, businesses must abide by all federal, state, and local laws.

As indicated above, NCTCOG complies with Title VII of the Civil Rights Act of 1964 and the Americans with Disabilities Act (ADA). Both of these laws require all private employers, state and local governments, and education institutions that employ 15 or more individuals, private and public employment agencies, labor organizations, and joint labor management committees controlling apprenticeship and training to comply. As a matter of policy and law, these agencies will follow these laws and principles for this (and all) projects.

As the submitting agency, NCTCOG certifies compliance with federal wage rate requirements as indicated on the next page.

Federal Wage Rate Requirement

The North Central Texas Council of Governments (NCTCOG), as an applicant for Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grant funds, certifies that for TIGER funds awarded to NCTCOG it will comply with the requirements of Subchapter IV of Chapter 31 of Title 40 (40 U.S.C. 3141, *et. seq.*) (federal wage rate requirements) as required by the Fiscal Year 2014 Continuing Appropriations Act.

Furthermore, NCTCOG annually certifies compliance with the Davis-Bacon Act as amended, 40 U.S.C. 3141 *et. seq.,* the Copeland "Anti-Kickback" Act, as amended, 18 U.S.C. 874, and the Contract Work Hours and Safety Standards Act, as amended, 40 U.S.C. 3701 *et seq.*, regarding labor standards for federally assisted projects. NCTCOG certifies to this provision within its annual Certifications and Assurances to the Federal Transit Administration.
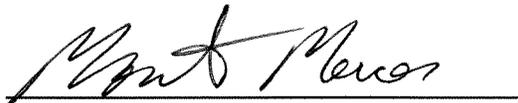
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Monte Mercer, CPA   Date
Deputy Executive Director
North Central Texas Council of Governments
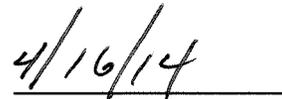
Appendix A

Benefit Cost

S. M. Wright Project – Phase II-B

Benefit Cost
Appendix

April 2014

**North Central Texas
Council of Governments**

Transportation Department

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S.M. Wright Project – Phase II-B
Benefit Cost Appendix

U.S. Department of Transportation
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I. Methodology

The following description provides the methodology for various sections within the Benefit Cost Analysis (BCA), including detailed calculations of benefits and costs of the S.M. Wright Phase II-B project for the years between 2014 and 2039, for each cost and benefit factor. Benefits are assumed to incur after project completion in 2018 for a 20-year life span of the projects to 2039.

Traffic forecasts were conducted for current conditions (2013) and for build and no-build conditions in 2019 and 2035 using the NCTCOG DFX Regional Travel Demand Model. This version of the travel demand model and the no-build transportation networks were used for *Mobility 2035 – 2013 Update: The Metropolitan Transportation Plan for North Central Texas*. The only modification made in running the two build alternatives was the addition of the S.M. Wright Phase II-B project to the transportation network.

a. Project Cost

Proposed construction costs were obtained from the Texas Department of Transportation. Annual construction costs were estimated based on the proposed construction schedule for S.M. Wright Phase II-B. The project schedule is shown in section III.c of the S.M. Wright Phase II-B FY2014 TIGER Discretionary Grant Application.

b. Short Term Jobs

Per BCA Guidance, the proposed transportation investment per quarter was divided by $76,900 to calculate the short-term job-years and short-term jobs generated by quarter. These results were used to calculate the number of direct construction jobs created by funding the S.M. Wright Phase II-B project. No job creation benefit was included in the overall benefits of the project.

c. Maintenance Savings (State of Good Repair)

Reduced annual maintenance costs are a direct benefit of the S.M. Wright Phase II-B project. The overall paved footprint of transportation infrastructure in the project area would be reduced. The reduction in total paved area will reduce the annual cost of maintaining the transportation infrastructure. The total paved area under the no build condition was calculated based on aerial orthophotography from 2013. The paved area in the build condition was calculated from the preliminary schematic for Alternative A.

It was assumed that the annual maintenance cost for areas paved in concrete is $10,000 per lane-mile. This figure was converted into an annual cost of $6,875 per acre by assuming 12 foot lanes. The difference in the paved area was then multiplied by the annual cost to calculate the benefit from reduced maintenance costs.

S.M. Wright Project – Phase II-B
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Equation for Annual Maintenance Benefit:

$$Annual\ Maintenance\ Benefit$$
$$= (Paved\ Footprint_{No\ Build} - Paved\ Footprint_{Build}) \times \frac{\$6,875}{acre}$$

d. Developable Land (Economic Competitiveness)

Much of the right-of-way currently dedicated to access ramps connecting S.M. Wright Freeway to IH 45 and the local thoroughfare network would be returned to other uses. The City of Dallas and TxDOT currently own this right-of-way. After the S.M. Wright Project – Phase II-B is implemented, the stock of developable land in the project area will be increased by approximately 7.5 acres. To quantify this benefit the land value for the newly developable area was assumed to be similar to the land value of existing commercial/industrial parcels near the project. Based on current 2014 parcel data from the Dallas County Appraisal District (http://www.dallascad.org/), there were 242 commercial and/or industrial properties within the project study area. The total area of these parcels was 168.768 acres. The assessed land value (which excludes the value of buildings and other improvements) was $23,487,090. Therefore, the average value of this type of developable land in the project area is $139,167.68/acre. This dollar amount was multiplied by 7.5 acres to calculate the one-time benefit of the increase in developable land.

Equation for Developable Land Benefit:

$$Developable\ Land\ Benefit\ (One\ Time)$$
$$= Area\ of\ Newly\ Developable\ Land \times \frac{\$139,167.68}{acre}$$

e. Improved Access (Economic Competitiveness)

Economic development benefits from the project also stem from increased access to jobs and customers for the residents and businesses in the project area. Travel model forecasts show that approximately 3.5 percent more jobs are within a 15-minute drive of the intersection of S.M. Wright Parkway and MLK Jr. Boulevard after the project is implemented. This effect was present in both the 2019 and 2035 travel demand forecasts. The increased access is expected to increase the value of the residential and commercial land in the project area by a similar percentage. The benefit from improved access was calculated by multiplying $45,831,190 (the total land value of the 1,787 parcels within the project study area) by 3.5 percent.

Equation for Improved Access Benefit:

$$Improved\ Access\ Benefit\ (One\ Time)$$
$$= Land\ Value\ of\ Parcels\ within\ 0.5\ mile\ of\ the\ Project\ Area \times 3.5\%$$

f. Geometric Crash Reduction Benefit (Safety)

The construction of the S.M. Wright Project – Phase II-B will reduce crashes in the project area through improvements to the configuration of the transportation system. This improved safety comes from several sources: reducing speeds and traffic levels on S.M. Wright Parkway; calming traffic on local roads by simplifying access and reducing the speed on the major thoroughfare; and adding auxiliary lanes and shifting traffic to IH 45.

Crash data between 2009 and 2013 from the Texas Department of Transportation was used in the analysis. Annual crash frequencies were developed for S.M. Wright Freeway (including the access ramps), IH 45, and for a combination of other local thoroughfares. These crash frequencies and regional travel model current year facility volume estimates were used to develop crash rates for each of the three facilities.

Three crash modification factors (CMF) were applied to the daily travel volumes in the build alternatives. The speed reduction on S.M. Wright Parkway compared to the existing access ramps will be in the 15 to 20 miles per hour range. The Crash Modification Factor Clearinghouse (http://www.cmfclearinghouse.org/) lists CMF ID 1240, "Lower posted speed by 15-20 mph" that was applied to the daily vehicle miles traveled on S.M. Wright Parkway in the project area. The addition of auxiliary lanes between ramps on IH 45 will increase safety for drivers on IH 45. The Crash Modification Factor Clearinghouse lists CMF ID 3898, "Provide an auxiliary lane between an entrance ramp and exit ramp" that was applied to the daily vehicle miles traveled on IH 45 in the project area. The reconfigured interactions between the local streets, IH 45 frontage roads and S.M. Wright Parkway will calm traffic on connecting facilities. The Crash Modification Factor Clearinghouse lists CMF ID 588, "Area-wide or corridor-specific traffic calming" that was applied to the daily vehicle miles traveled on local thoroughfares in the project area.

A composite expected crash rate for the project area was developed for four conditions: 2019 no build, 2019 build, 2035 no build, and 2035 build. The project area crash rate accounted for safety improvements based on shifts in the volumes traveling on each facility and the geometric improvements included in the project. The difference in expected crashes between the build condition and the no build condition is the direct safety benefit of the project. These reductions in crashes were then monetized based on the guidance in the TIGER BCA Resource Guide.

Equation for Annual Geometric Crash Reduction Benefit:

$$
\begin{aligned}
&Annual\ Geometric\ Crash\ Reduction\ Benefit \\
&\quad = (Expected\ Crash\ Rate_{Build} - Expected\ Crash\ Rate_{No\ Build})_{KABCO\ Type} \\
&\quad \times KABCO\ to\ AIS\ Conversion \times Monetized\ Value_{By\ AIS\ Type}
\end{aligned}
$$

g. Regional Crash Reduction Benefit (Safety)

The removal of direct access ramps between S.M. Wright Parkway and IH 45 and addition of access ramps and auxiliary lanes to IH 45 will encourage more vehicles to use IH 45. This redistribution of traffic helps to improve regional transportation safety because limited access facilities are relatively safer than local thoroughfares and other secondary streets. This benefit is calculated by comparing the proportion of system-wide VMT on each functional classification of roadway under the build and no build conditions.

The Iowa Department of Transportation published crash rates per HMVMT for vehicles traveling on limited access facilities based on data from 2001-2009 (http://www.iowadot.gov/crashanalysis/pdfs/crash_rate-density_comparables_segments_2001-2009_20100706_dividedroadmainline.pdf). A similar publication listed crash rates per HMVMT on secondary roadways based on data from 2002-2011 (http://www.iowadot.gov/crashanalysis/pdfs/crash_rate-density_comparables_segments_2002-2011_20130215_secondary_functionalclass.pdf). TxDOT and NCTCOG do not have similar data, so the Iowa data was used to calculate the safety benefits to transportation system users in the Dallas-Fort Worth users.

To ensure that this estimate is conservative and freeways, freeway ramps, and managed or HOV lanes were assumed to generate crashes at the same rate as "Urban Expressways" in Iowa. Freeway service (or frontage) roads were assumed to be comparable to principal arterials. Other Dallas-Fort Worth roadways were directly comparable to the Iowa classification system. This methodology is based on the assumption that the differential in crash rates between roads of each functional classifications is similar regardless of the absolute crash rate of a state or region.

Equation for Annual Regional Crash Reduction Benefit:

$$\begin{aligned}
\textit{Annual Regional Crash Reduction Benefit} \\
= (Daily\,VMT_{By\,Roadway\,Class}\,(Build\,Network) \\
- Daily\,VMT_{By\,Roadway\,Class}\,(No\,Build\,Network)) \times 365\,days \\
\times Iowa\,Crash\,Rate_{By\,Roadway\,Class} \times KABCO\,to\,AIS\,Conversion \\
\times Monetized\,Value_{By\,AIS\,Type}
\end{aligned}$$

NOTE:

A static version of the Microsoft Excel spreadsheets used to calculate the costs and benefits are included below. A copy of the Microsoft Excel file is also included in the S.M. Wright Project – Phase II-B FY2014 Grant Application submittal.

	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
Constant Source							{1}	
							$ 76,900	
Equation							[D] / {1}	[G] x 4
					Total Project Spending		Short Term Jobs	
			Engineering/ ROW/Utilities	Construction			Construction JOB-YEARS BY	Construction JOBS BY
	Year	Quarter	Spending	Spending	By Quarter	By Year	QUARTER	QUARTER
	2014	Q1			$ -			
	2014	Q2			$ -	$ -		
	2014	Q3			$ -			
	2014	Q4			$ -		0.0	0
	2015	Q1			$ -		0.0	0
	2015	Q2			$ -	$ -	0.0	0
	2015	Q3			$ -		0.0	0
	2015	Q4			$ -		0.0	0
	2016	Q1			$ -		0.0	0
	2016	Q2			$ -	$ 4,105,263	0.0	0
	2016	Q3		$ 1,368,421	$ 1,368,421		17.8	71
	2016	Q4		$ 2,736,842	$ 2,736,842		35.6	142
	2017	Q1		$ 4,105,263	$ 4,105,263		53.4	214
	2017	Q2		$ 4,105,263	$ 4,105,263	$ 16,421,053	53.4	214
	2017	Q3		$ 4,105,263	$ 4,105,263		53.4	214
	2017	Q4		$ 4,105,263	$ 4,105,263		53.4	214
	2018	Q1		$ 4,105,263	$ 4,105,263		53.4	214
	2018	Q2		$ 1,368,421	$ 1,368,421	$ 5,473,684	17.8	71
	2018	Q3			$ -		0.0	0
	2018	Q4			$ -		0.0	0
	2019	Q1			$ -		0.0	0
	2019	Q2			$ -	$ -	0.0	0
	2019	Q3			$ -		0.0	0
	2019	Q4			$ -		0.0	0
	Total		$ -	$ 26,000,000	$ 26,000,000	$ 26,000,000		

Sources: {1} Conversion Factor: 1 job-year per $76,900 in spending (See TIGER BCA Resource Guide - Updated 5/3/13)

	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
Constant Source		{1}	{2}		{3}			
					$ 6,875			
Equation				[B] - [C]	[D] x {3}	[E] / (1.07^[H])	[E] / (1.03^[H])	
	Year	No Build Transportation Facility Footprint (Paved Acres)	Build Transportation Facility Footprint (Paved Acres)	Transportation Facility Footprint Reduction (Paved Acres)	Annual Maintenance Cost Reduction Benefit	7% NPV Maintenance Cost Reduction Benefits	3% NPV Maintenance Cost Reduction Benefits	Year
	2014	65			$ -	$ -	$ -	1
	2015	65			$ -	$ -	$ -	2
	2016	65			$ -	$ -	$ -	3
	2017	65			$ -	$ -	$ -	4
	2018	65			$ -	$ -	$ -	5
	2019	65	63	2	$ 13,750	$ 9,162	$ 11,515	6
	2020	65	63	2	$ 13,750	$ 8,563	$ 11,180	7
	2021	65	63	2	$ 13,750	$ 8,003	$ 10,854	8
	2022	65	63	2	$ 13,750	$ 7,479	$ 10,538	9
	2023	65	63	2	$ 13,750	$ 6,990	$ 10,231	10
	2024	65	63	2	$ 13,750	$ 6,533	$ 9,933	11
	2025	65	63	2	$ 13,750	$ 6,105	$ 9,644	12
	2026	65	63	2	$ 13,750	$ 5,706	$ 9,363	13
	2027	65	63	2	$ 13,750	$ 5,332	$ 9,090	14
	2028	65	63	2	$ 13,750	$ 4,984	$ 8,826	15
	2029	65	63	2	$ 13,750	$ 4,658	$ 8,569	16
	2030	65	63	2	$ 13,750	$ 4,353	$ 8,319	17
	2031	65	63	2	$ 13,750	$ 4,068	$ 8,077	18
	2032	65	63	2	$ 13,750	$ 3,802	$ 7,841	19
	2033	65	63	2	$ 13,750	$ 3,553	$ 7,613	20
	2034	65	63	2	$ 13,750	$ 3,321	$ 7,391	21
	2035	65	63	2	$ 13,750	$ 3,104	$ 7,176	22
	2036	65	63	2	$ 13,750	$ 2,901	$ 6,967	23
	2037	65	63	2	$ 13,750	$ 2,711	$ 6,764	24
	2038	65	63	2	$ 13,750	$ 2,533	$ 6,567	25
	2039	65	63	2	$ 13,750	$ 2,368	$ 6,376	26
20-Year Project Life	**Present through 2039**					$ 106,227	$ 182,836	

Sources: {1} Surface area covered by publicly owned transportation invrastructure based on aerial survey.

{2} Surface area covered by publicly owned transportation invrastructure based on project schematics (Alternative A).

{3} $10,000 annual cost to maintain one lane-mile of concrete pavement

	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]
Column Source		{1}		{3}					
Constant Source			{2}		{4}				
			$ 139,167.68		3.50%				
Equation			[B] x {2}		[C] x {4}	[C] + [E]	[F] / (1.07^[I])	[F] / (1.03^[I])	
			Developable Land		Improved Access	TOTAL			Year
	Year	Land Transitioned to Non-Transportation Uses (acres)	Benefit of an Increase in the Stock of Developable Land	Current Assessed Value of the Land in the Project Study Area	Benefit of Improved Access to Dallas CBD and other Employment Centers	Annual Economic Development Benefit	7% NPV Fuel Savings Benefits	3% NPV Fuel Savings Benefits	
	2014					$ -	$ -	$ -	0
	2015					$ -	$ -	$ -	1
	2016					$ -	$ -	$ -	2
	2017					$ -	$ -	$ -	3
	2018					$ -	$ -	$ -	4
	2019	7.5	$ 1,043,758	$ 45,831,190	$ 1,604,092	$ 2,647,849	$ 1,887,880	$ 2,284,058	5
	2020					$ -	$ -	$ -	6
	2021					$ -	$ -	$ -	7
	2022					$ -	$ -	$ -	8
	2023					$ -	$ -	$ -	9
	2024					$ -	$ -	$ -	10
	2025					$ -	$ -	$ -	11
	2026					$ -	$ -	$ -	12
	2027					$ -	$ -	$ -	13
	2028					$ -	$ -	$ -	14
	2029					$ -	$ -	$ -	15
	2030					$ -	$ -	$ -	16
	2031					$ -	$ -	$ -	17
	2032					$ -	$ -	$ -	18
	2033					$ -	$ -	$ -	19
	2034					$ -	$ -	$ -	20
	2035					$ -	$ -	$ -	21
	2036					$ -	$ -	$ -	22
	2037					$ -	$ -	$ -	23
	2038					$ -	$ -	$ -	24
	2039					$ -	$ -	$ -	25
20-Year Project Present through 2039							$ 1,887,880	$ 2,284,058	

Sources: {1} Difference between the right-of-way needed for the No Build Condition and the right-of-way required for SM Wright Phase II-B Alternative A.

{2} Dallas County Appraisal District, 2013. There were 242 Commercial/Industrial properties within the project study area. The total area of these parcels was 168.768 acres. The assessed land value (which excludes the value of buildings and other improvements) was $23,487,090 (2013$). The average value of commercial/industrial sites in the project area is $139,167.68/acre.

{3} Dallas County Appraisal District, 2013. There were 1,787 properties within the project study area. The total area of these parcels was 471.204 acres. The assessed land value (which excludes the value of buildings and other improvements) was $45,831,190 (2013$).

{4} Percent increase in the number of jobs within 15 minutes of the intersection of SM Wright Parkway and MLK Jr. Blvd in the Build condition compared to the No Build condition

Crashes on IH 45

	# Not Injured	# of Possible Injury Crashes	# of Non-Incapacitating Injury Crashes	# of Incapacitating Injury Crashes	# Fatality Crashes	# Unknown Injury Crashes	
Total Crashes (2009-2013)	84	35	11	4	4	4	
Crashes Per Year	16.80000	7.00000	2.20000	0.80000	0.80000	0.80000	
Daily VMT (2013)	64,394	Total VMT (2013)	23,503,810				
No Build Crashes per HM	71.47777	29.78241	9.36018	3.40370	3.40370	3.40370	
Calculated CRF	Provide an auxiliary lane between an entrance ramp and exit ramp (CMF ID: 3898)			0.8	80%		http://www.cmfclearinghouse.org/detail.cfm?facid=3898
Build Crashes per HMVM	57.18222	23.82592	7.48815	2.72296	2.72296	2.72296	

IH 45 Traffic Scenarios

Scenario	Daily VMT on IH 45	Annual VMT on IH 45	Expected # Not Injured	Expected # of Possible Injury Crashes	Expected # of Non-Incapacitating Injury Crashes	Expected # of Incapacitating Injury Crashes	Expected # Fatality Crashes	Expected # Unknown Injury Crashes
2019 No Build	150427.9671	54906208	39.24573	16.35239	5.13932	1.86884	1.86884	1.86884
2019 Build	156478.7195	57114732.63	32.65947	13.60811	4.27684	1.55521	1.55521	1.55521
2035 No Build	147121.8588	53699478.45	38.38319	15.99300	5.02637	1.82777	1.82777	1.82777
2035 Build	153678.768	56092750.34	32.07508	13.36462	4.20031	1.52738	1.52738	1.52738

Crashes on SM Wright

	# Not Injured	# of Possible Injury Crashes	# of Non-Incapacitating Injury Crashes	# of Incapacitating Injury Crashes	# Fatality Crashes	# Unknown Injury Crashes	
Total Crashes (2009-2013)	24	12	7	2	2	0	
Crashes Per Year	4.80000	2.40000	1.40000	0.40000	0.40000	0.00000	
Daily VMT (2013)	63,553	Total VMT (2013)	23,196,845				
No Build Crashes per HM	20.69247	10.34623	6.03530	1.72437	1.72437	0.00000	
Calculated CRF	Lower posted speed by 15-20 mph (CMF ID: 1240)			0.94	94%		http://www.cmfclearinghouse.org/detail.cfm?facid=1240
Build Crashes per HMVM	19.45092	9.72546	5.67319	1.62091	1.62091	0.00000	

SM Wright Traffic Scenarios

Scenario	Daily VMT on SM Wright	Annual VMT on SM Wright	Expected # Not Injured	Expected # of Possible Injury Crashes	Expected # of Non-Incapacitating Injury Crashes	Expected # of Incapacitating Injury Crashes	Expected # Fatality Crashes	Expected # Unknown Injury Crashes
2019 No Build	11795.36535	4305308.354	0.89087	0.44544	0.25984	0.07424	0.07424	0.00000
2019 Build	5566.126904	2031636.32	0.39517	0.19759	0.11526	0.03293	0.03293	0.00000
2035 No Build	12965.99498	4732588.166	0.97929	0.48964	0.28563	0.08161	0.08161	0.00000
2035 Build	5326.074093	1944017.044	0.37813	0.18906	0.11029	0.03151	0.03151	0.00000

Crashes on City Streets

	# Not Injured	# of Possible Injury Crashes	# of Non-Incapacitating Injury Crashes	# of Incapacitating Injury Crashes	# Fatality Crashes	# Unknown Injury Crashes	
Total Crashes (2009-2013)	90	48	29	7	3	8	
Crashes Per Year	18.00000	9.60000	5.80000	1.40000	0.60000	1.60000	
Daily VMT (2013)	84,145	Total VMT (2013)	30,712,917				
No Build Crashes per HM	58.60726	31.25721	18.88456	4.55834	1.95358	5.20953	
Calculated CRF	Area-wide or corridor-specific traffic calming (CMF ID: 588)			0.94	94%		http://www.cmfclearinghouse.org/detail.cfm?facid=588
Build Crashes per HMVM	55.09083	29.38177	17.75149	4.28484	1.95358	4.89696	

City Street Traffic Scenarios

Scenario	Daily VMT on City Streets	Annual VMT on City Streets	Expected # Not Injured	Expected # of Possible Injury Crashes	Expected # of Non-Incapacitating Injury Crashes	Expected # of Incapacitating Injury Crashes	Expected # Fatality Crashes	Expected # Unknown Injury Crashes
2019 No Build	13670.34195	4989674.812	2.92431	1.55963	0.94228	0.22745	0.09748	0.25994
2019 Build	15301.08583	5584896.327	3.07677	1.64094	0.99140	0.23930	0.10911	0.27349
2035 No Build	14819.33008	5409055.481	3.17010	1.69072	1.02148	0.24656	0.10567	0.28179
2035 Build	16967.31108	6193068.543	3.41181	1.81963	1.09936	0.26536	0.12099	0.30327

Project Area Expected Crash Rates

Scenario	Expected # Not Injured	Expected # of Possible Injury Crashes	Expected # of Non-Incapacitating Injury Crashes	Expected # of Incapacitating Injury Crashes	Expected # Fatality Crashes	Expected # Unknown Injury Crashes
2019 No Build	43.06092	18.35746	6.34144	2.17053	2.04056	2.12878
2019 Build	36.13141	15.44664	5.38350	1.82745	1.69725	1.82870
2019 Crash Reduction	-6.92951	-2.91082	-0.95794	-0.34308	-0.34331	-0.30008
2035 No Build	42.53258	18.17336	6.33347	2.15594	2.01505	2.10956
2035 Build	35.86502	15.37331	5.40996	1.82426	1.67988	1.83066
2035 Crash Reduction	-6.66756	-2.80005	-0.92352	-0.33168	-0.33517	-0.27890

Year 2019 Crash Reduction
KABCO Accident Classification System

AIS Rating System	O No Injury Number	O No Injury Factor	C Possible Injury Number	C Possible Injury Factor	B Non-Incapacitating Number	B Non-Incapacitating Factor	A Incapacitating Number	A Incapacitating Factor	K Killed Number	K Killed Factor	U Injured Severity Unknown Number	U Injured Severity Unknown Factor	Annual Crash Reduction
0		0.92534		0.23437		0.08347		0.03437		0.00000		0.21538	-7.25075
1		0.07257		0.68946		0.76843		0.55449		0.00000		0.62728	-3.62435
2		0.00198		0.06391		0.10898		0.20908		0.00000		0.10400	-0.40709
3	-6.92951	0.00008	-2.91082	0.01071	-0.95794	0.03191	-0.34308	0.14437	-0.34331	0.00000	-0.30008	0.03858	-0.12341
4		0.00000		0.00142		0.00620		0.03986		0.00000		0.00442	-0.02507
5		0.00003		0.00013		0.00101		0.01783		0.00000		0.01034	-0.01077
Fatal		0.00000		0.00000		0.00000		0.00000		1.00000		0.00000	-0.34331

Source: National Highway Traffic Safety Administration, July 2011.

Year 2035 Crash Reduction
KABCO Accident Classification System

AIS Rating System	O No Injury Number	O No Injury Factor	C Possible Injury Number	C Possible Injury Factor	B Non-Incapacitating Number	B Non-Incapacitating Factor	A Incapacitating Number	A Incapacitating Factor	K Killed Number	K Killed Factor	U Injured Severity Unknown Number	U Injured Severity Unknown Factor	Annual Crash Reduction
0		0.92534		0.23437		0.08347		0.03437		0.00000		0.21538	-6.97456
1		0.07257		0.68946		0.76843		0.55449		0.00000		0.62728	-3.48291
2		0.00198		0.06391		0.10898		0.20908		0.00000		0.10400	-0.39115
3	-6.66756	0.00008	-2.80005	0.01071	-0.92352	0.03191	-0.33168	0.14437	-0.33517	0.00000	-0.27890	0.03858	-0.11864
4		0.00000		0.00142		0.00620		0.03986		0.00000		0.00442	-0.02416
5		0.00003		0.00013		0.00101		0.01783		0.00000		0.01034	-0.01029
Fatal		0.00000		0.00000		0.00000		0.00000		1.00000		0.00000	-0.33517

Source: National Highway Traffic Safety Administration, July 2011.

Notes for All Crash Data:

1. This data consist of all locatable crashes that include latitude and longitude information
2. This data consist of all crash types that occurred within 100 feet of the area bounded by Ervay Street, Pennsylvania Avenue, Atlanta Street, and Coombs Street. This area is the project area of the S.M. Wright Project – Phase II-B.
3. This data is composed of TxDOT "Reportable Crashes" only
   a. A "Reportable Motor Vehicle Traffic Crash" is defined by TxDOT as: any crash involving motor vehicle in transport that occurs or originates on a traffic way, results in injury to or death of any person, or damage to the property of any one person to the apparent extent of $1,000
      i. A trafficway is defined as any land way open to the public as a matter of right or custom for moving persons or property from one place to another
4. Source: TxDOT's Crash Records Information System (CRIS) - 2013 January Extract - all TxDOT disclaimers apply to this information
      Link: http://www.txdot.gov/government/enforcement/crash-statistics.html

	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]	[O]	[P]	[Q]	[R]	[S]
Column Source		{1,2}	{1,2}	{1,2}	{1,2}	{1,2}	{1,2}	{1,2}											
Constant Source									{3}	{4}	{5}	{6}	{7}	{8}	{9}				
									$ 3,878	$ 27,600	$ 432,400	$ 966,000	$ 2,447,200	$ 5,455,600	$ 9,200,000				
Equation									[B] x {3}	[C] x {4}	[D] x {5}	[E] x {6}	[F] x {7}	[G] x {8}	[H] x {9}	SUM([I:O])	[P] / (1.07^[S])	[P] / (1.03^[S])	
		ANNUAL REDUCTION IN CRASHES (BY AIS Rating Category)							ANNUAL CRASH REDUCTION BENEFIT (BY AIS Rating Category)							Total Crash Reduction Benefit	7% NPV Maintenance Cost Reduction	3% NPV Maintenance Cost Reduction	Year
	YEAR	0	1	2	3	4	5	Fatal	0	1	2	3	4	5	Fatal				
	2014															$ -			0
	2015															$ -			1
	2016															$ -			2
	2017															$ -			3
	2018															$ -			4
	2019	-7.25075	-3.62435	-0.40709	-0.12341	-0.02507	-0.01077	-0.34331	$ 28,116	$ 100,032	$ 176,026	$ 119,214	$ 61,351	$ 58,757	$ 3,158,452	$ 3,701,948	$ 2,639,437	$ 3,193,332	5
	2020	-7.23349	-3.61551	-0.40609	-0.12311	-0.02501	-0.01074	-0.34280	$ 28,049	$ 99,788	$ 175,595	$ 118,926	$ 61,212	$ 58,593	$ 3,153,772	$ 3,695,935	$ 2,462,757	$ 3,095,280	6
	2021	-7.21623	-3.60667	-0.40510	-0.12281	-0.02496	-0.01071	-0.34229	$ 27,982	$ 99,544	$ 175,164	$ 118,638	$ 61,073	$ 58,429	$ 3,149,091	$ 3,689,921	$ 2,297,898	$ 3,000,244	7
	2022	-7.19896	-3.59783	-0.40410	-0.12252	-0.02490	-0.01068	-0.34178	$ 27,915	$ 99,300	$ 174,733	$ 118,350	$ 60,934	$ 58,266	$ 3,144,411	$ 3,683,908	$ 2,144,068	$ 2,908,111	8
	2023	-7.18170	-3.58899	-0.40311	-0.12222	-0.02484	-0.01065	-0.34128	$ 27,848	$ 99,056	$ 174,303	$ 118,062	$ 60,795	$ 58,102	$ 3,139,730	$ 3,677,895	$ 2,000,531	$ 2,818,801	9
	2024	-7.16444	-3.58015	-0.40211	-0.12192	-0.02479	-0.01062	-0.34077	$ 27,781	$ 98,812	$ 173,872	$ 117,774	$ 60,655	$ 57,938	$ 3,135,050	$ 3,671,882	$ 1,866,599	$ 2,732,225	10
	2025	-7.14718	-3.57131	-0.40111	-0.12162	-0.02473	-0.01059	-0.34026	$ 27,714	$ 98,568	$ 173,441	$ 117,486	$ 60,516	$ 57,775	$ 3,130,369	$ 3,665,869	$ 1,741,628	$ 2,648,302	11
	2026	-7.12992	-3.56247	-0.40012	-0.12132	-0.02467	-0.01056	-0.33975	$ 27,647	$ 98,324	$ 173,010	$ 117,198	$ 60,377	$ 57,611	$ 3,125,689	$ 3,659,856	$ 1,625,020	$ 2,566,950	12
	2027	-7.11266	-3.55363	-0.39912	-0.12103	-0.02462	-0.01053	-0.33924	$ 27,580	$ 98,080	$ 172,579	$ 116,910	$ 60,238	$ 57,447	$ 3,121,008	$ 3,653,843	$ 1,516,215	$ 2,488,089	13
	2028	-7.09539	-3.54479	-0.39812	-0.12073	-0.02456	-0.01050	-0.33873	$ 27,513	$ 97,836	$ 172,149	$ 116,622	$ 60,099	$ 57,284	$ 3,116,328	$ 3,647,830	$ 1,414,691	$ 2,411,645	14
	2029	-7.07813	-3.53595	-0.39713	-0.12043	-0.02450	-0.01047	-0.33822	$ 27,446	$ 97,592	$ 171,718	$ 116,334	$ 59,959	$ 57,120	$ 3,111,647	$ 3,641,817	$ 1,319,962	$ 2,337,544	15
	2030	-7.06087	-3.52711	-0.39613	-0.12013	-0.02444	-0.01044	-0.33771	$ 27,379	$ 97,348	$ 171,287	$ 116,046	$ 59,820	$ 56,956	$ 3,106,967	$ 3,635,804	$ 1,231,573	$ 2,265,713	16
	2031	-7.04361	-3.51827	-0.39514	-0.11983	-0.02439	-0.01041	-0.33721	$ 27,312	$ 97,104	$ 170,856	$ 115,758	$ 59,681	$ 56,793	$ 3,102,286	$ 3,629,791	$ 1,149,099	$ 2,196,083	17
	2032	-7.02635	-3.50943	-0.39414	-0.11953	-0.02433	-0.01038	-0.33670	$ 27,245	$ 96,860	$ 170,426	$ 115,470	$ 59,542	$ 56,629	$ 3,097,606	$ 3,623,778	$ 1,072,145	$ 2,128,588	18
	2033	-7.00908	-3.50059	-0.39314	-0.11924	-0.02427	-0.01035	-0.33619	$ 27,179	$ 96,616	$ 169,995	$ 115,182	$ 59,403	$ 56,465	$ 3,092,925	$ 3,617,765	$ 1,000,342	$ 2,063,161	19
	2034	-6.99182	-3.49175	-0.39215	-0.11894	-0.02422	-0.01032	-0.33568	$ 27,112	$ 96,372	$ 169,564	$ 114,894	$ 59,264	$ 56,302	$ 3,088,245	$ 3,611,752	$ 933,345	$ 1,999,739	20
	2035	-6.97456	-3.48291	-0.39115	-0.11864	-0.02416	-0.01029	-0.33517	$ 27,045	$ 96,128	$ 169,133	$ 114,606	$ 59,124	$ 56,138	$ 3,083,564	$ 3,605,739	$ 870,833	$ 1,938,262	21
	2036	-6.95730	-3.47407	-0.39015	-0.11834	-0.02410	-0.01026	-0.33466	$ 26,978	$ 95,884	$ 168,702	$ 114,318	$ 58,985	$ 55,974	$ 3,078,884	$ 3,599,726	$ 812,506	$ 1,878,670	22
	2037	-6.94004	-3.46523	-0.38916	-0.11804	-0.02405	-0.01023	-0.33415	$ 26,911	$ 95,640	$ 168,272	$ 114,030	$ 58,846	$ 55,811	$ 3,074,203	$ 3,593,713	$ 758,083	$ 1,820,905	23
	2038	-6.92277	-3.45639	-0.38816	-0.11775	-0.02399	-0.01020	-0.33364	$ 26,844	$ 95,396	$ 167,841	$ 113,742	$ 58,707	$ 55,647	$ 3,069,523	$ 3,587,700	$ 707,303	$ 1,764,911	24
	2039	-6.90551	-3.44755	-0.38717	-0.11745	-0.02393	-0.01017	-0.33314	$ 26,777	$ 95,152	$ 167,410	$ 113,454	$ 58,568	$ 55,483	$ 3,064,842	$ 3,581,687	$ 659,923	$ 1,710,634	25
20-Year Project Life	**Present through 2039**																$ 28,856,733	$ 46,491,652	

Sources:

{1} The annual crash reduction benefits by AIS Rating for year 2019 are taken from cells O66 to O72 in the [Geometric Crash Reduction Data] tab.

{2} The annual crash reduction benefits by AIS Rating for year 2035 are taken from cells O80 to O86 in the [Geometric Crash Reduction Data] tab.

{3} Value of Property Damage Only Crashes *The Economic Impact of Motor Vehicle Crashes 2000*
  Note: Value adjusted from 2010$ to 2013$ using the BLS GDP deflator method
  Link: http://www.nhtsa.gov/DOT/NHTSA/Communication%20&%20Consumer%20Information/Articles/Associated%20Files/EconomicImpact2000.pdf

{4} Value of AIS Type 1 Crashes *Guidance on Treatment of the Economic Value of Statistical Life in U.S. Department of Transportation Analyses* (2013)
  Link: http://www.dot.gov/office-policy/transportation-policy/guidance-treatment-economic-value-statistical-life

{5} Value of AIS Type 2 Crashes *Guidance on Treatment of the Economic Value of Statistical Life in U.S. Department of Transportation Analyses* (2013)
  Link: http://www.dot.gov/office-policy/transportation-policy/guidance-treatment-economic-value-statistical-life

{6} Value of AIS Type 3 Crashes *Guidance on Treatment of the Economic Value of Statistical Life in U.S. Department of Transportation Analyses* (2013)
  Link: http://www.dot.gov/office-policy/transportation-policy/guidance-treatment-economic-value-statistical-life

{7} Value of AIS Type 4 Crashes *Guidance on Treatment of the Economic Value of Statistical Life in U.S. Department of Transportation Analyses* (2013)
  Link: http://www.dot.gov/office-policy/transportation-policy/guidance-treatment-economic-value-statistical-life

{8} Value of AIS Type 5 Crashes *Guidance on Treatment of the Economic Value of Statistical Life in U.S. Department of Transportation Analyses* (2013)
  Link: http://www.dot.gov/office-policy/transportation-policy/guidance-treatment-economic-value-statistical-life

{9} Value of AIS Type 6 (Fatality) Crashes *Guidance on Treatment of the Economic Value of Statistical Life in U.S. Department of Transportation Analyses* (2013)
  Link: http://www.dot.gov/office-policy/transportation-policy/guidance-treatment-economic-value-statistical-life

TABLE 1 - IOWA CRASH RATE DATA
Crash Rates per 100 Million Vehicle Miles of Travel (crashes/HMVMT)

Crash Rate Code [a]	Roadway Type [b]	Fatal Crash Rate [c]	Major Injury Crash Rate [d]	Minor Injury Crash Rate [e]	Possible/ Unknown Injury Crash Rate [f]	Property Damage Only Crash Rates [g]
A	Urban Interstates [1]	0.53	2.08	7	13	52
B	Urban Freeways [1]	0.61	2.26	7	12	58
C	Urban Expressways [1]	0.63	3.29	13	25	83
D	Principal Arterial [2]	1.86	9.28	27	40	205
E	Minor Arterial [2]	2.09	7.71	23	35	146
F	Major Collector [2]	2.75	8.42	20	24	106
G	Minor Collector [2]	4.43	14.58	39	44	163
H	Local [2]	5.97	22.08	62	74	253

[1] Crash Rates and Crash Densities on Mainline, Divided Roads in Iowa 2001-2009, Iowa Department of Transportation, July 6, 2010, page 11
[2] Crash Rates and Crash Densities on Secondary Roads in Iowa by Functional Class 2002-2011, Iowa Department of Transportation, February 18, 2013, Page 12

TABLE 2 - YEAR 2019 CRASH RATE REDUCTION CALCULATIONS (KABCO)

Regional Crash Rate Differential (crashes/HMVMT)

Crash Rate Code [a]	Roadway Type [b]	No Build Condition Daily VMT [c]	Year 2019 Build Condition Daily VMT [d]	Daily VMT Difference (Build - No Build) [e]	Annual VMT Differential [f]	Fatal Crash Rate [g] ROW[a]=TABLE 1,ROW[a]	Major Injury Crash Rate [h] ROW[a]=TABLE 1,ROW[a]	Minor Injury Crash Rate [i] ROW[a]=TABLE 1,ROW[a]	Possible/ Unknown Injury Crash Rate [j] ROW[a]=TABLE 1,ROW[a]	Property Damage Only Crash Rates [k] ROW[a]=TABLE 1,ROW[a]
				[f] - [g]	[c] x 365					
C	FREEWAYS	97,628,883.75	97,640,615.25	11,731.50	4,281,997.50	0.026976584	0.140877718	0.556659675	1.070499375	3.554057925
D	PRINCIPAL ARTERIALS	42,478,645.48	42,473,596.86	-5,048.62	-1,842,746.30	-0.034275081	-0.171006857	-0.497541501	-0.73709852	-3.777629915
E	MINOR ARTERIALS	39,621,495.70	39,619,530.09	-1,965.61	-717,447.65	-0.014994656	-0.055315214	-0.165012959	-0.251106677	-1.047473569
F	COLLECTORS	14,488,578.78	14,486,992.59	-1,586.19	-578,959.35	-0.015921382	-0.048748377	-0.11579187	-0.138950244	-0.613696911
C	FREEWAY RAMPS	7,735,254.09	7,724,264.04	-10,990.05	-4,011,368.25	-0.02527162	-0.131974015	-0.521477872	-1.002842062	-3.329435647
D	FRONTAGE ROADS	8,219,265.99	8,219,975.46	709.47	258,956.55	0.004816592	0.024031168	0.069918268	0.10358262	0.530860927
C	HOV LANES	2,111,185.38	2,120,380.58	9,195.20	3,356,248.00	0.021144362	0.110420559	0.43631224	0.839062	2.78568584
TOTALS		212,283,309.17	212,285,354.87	2,045.70		-0.037525	-0.131715	-0.236934	-0.116854	-1.897631
				Crash Rate Reduction (crashes/HMVMT)		-4.84295E-13	-1.69990E-12	-3.05784E-12	-1.50810E-12	-2.44906E-11
				KABCO Severity Level		K	A	B	U*	O

*Used Unknown Severity instead of Possible Injury because it has smaller factors when converting to the AIS Rating System

TABLE 3 - YEAR 2019 CRASH RATE REDUCTION CALCULATIONS (AIS)

KABCO Type →													
	O No Injury		**C** Possible Injury		**B** Non-Incapacitating		**A** Incapacitating		**K** Killed		**U** Injured Severity Unknown		**Crash Rate Reduction (crashes/HMVMT)**
AIS Rating System	Number	Factor	Number	Factor	Number	Factor	Number	Factor	Number	Factor	Number	Factor	
0		0.92534		0.23437		0.08347		0.03437		0.00000		0.21538	-1.80543E+00
1		0.07257		0.68946		0.76843		0.55449		0.00000		0.62728	-4.66113E-01
2		0.00198		0.06391		0.10898		0.20908		0.00000		0.10400	-6.92701E-02
3	-1.89763E+00	0.00008	0.00000E+00	0.01071	-2.36934E-01	0.03191	-1.31715E-01	0.14437	-3.75252E-02	0.00000	-1.16854E-01	0.03858	-3.12363E-02
4		0.00000		0.00142		0.00620		0.03986		0.00000		0.00442	-7.23564E-03
5		0.00003		0.00013		0.00101		0.01783		0.00000		0.01034	-3.85298E-03
Fatal		0.00000		0.00000		0.00000		0.00000		1.00000		0.00000	-3.75252E-02

Source: National Highway Traffic Safety Administration, July 2011.

TABLE 4 - YEAR 2035 CRASH RATE REDUCTION CALCULATIONS (KABCO)

Crash Rate Code [a]	Roadway Type [b]	Year 2035 No Build Condition Daily VMT [c]	No Build Build Condition Daily VMT [d]	IH 30/IH 35W Managed Lane Access Ramp Build Daily VMT Difference (Build - No Build) [e]	Regional Crash Rate Differential (crashes/HMVMT) Annual VMT Differential [f]	Fatal Crash Rate [g] ROW[a]=TABLE 1,ROW[a]	Major Injury Crash Rate [h] ROW[a]=TABLE 1,ROW[a]	Minor Injury Crash Rate [i] ROW[a]=TABLE 1,ROW[a]	Possible/ Unknown Injury Crash Rate [j] ROW[a]=TABLE 1,ROW[a]	Property Damage Only Crash Rates [k] ROW[a]=TABLE 1,ROW[a]
				[f] - [g]	[c] x 365					
C	FREEWAYS	125,685,502.69	125,716,527.24	31,024.55	11,323,960.75	0.071340953	0.372558309	1.472114897	2.830990187	9.398887422
D	PRINCIPAL ARTERIALS	55,430,194.54	55,421,163.37	-9,031.17	-3,296,377.05	-0.061312613	-0.30590379	-0.890021804	-1.31855082	-6.757572953
E	MINOR ARTERIALS	54,755,607.32	54,760,812.10	5,204.78	1,899,744.70	0.039704664	0.146470316	0.436941281	0.664910645	2.773627262
F	COLLECTORS	20,633,999.80	20,629,435.97	-4,563.83	-1,665,797.95	-0.045809444	-0.140260187	-0.33315959	-0.399791508	-1.765745827
C	FREEWAY RAMPS	10,340,616.04	10,328,281.59	-12,334.45	-4,502,074.25	-0.028363068	-0.148118243	-0.585269652	-1.125518562	-3.736721627
D	FRONTAGE ROADS	11,135,541.64	11,132,678.52	-2,863.12	-1,045,038.80	-0.019437722	-0.096979601	-0.282160476	-0.41801552	-2.14232954
C	HOV LANES	3,617,069.86	3,605,205.41	-11,864.45	-4,330,524.25	-0.027282303	-0.142474248	-0.562968152	-1.082631062	-3.594335127
TOTALS		281,598,531.89	281,594,104.20	-4,427.69		-0.071160	-0.314707	-0.744523	-0.848607	-5.824190
				Crash Rate Reduction (crashes/HMVMT)		-6.92336E-13	-3.06190E-12	-7.24373E-12	-8.25639E-12	-5.66656E-11
				KABCO Severity Level		K	A	B	U*	O

*Used Unknown Severity instead of Possible Injury because it has smaller factors when converting to the AIS Rating System

TABLE 5 - YEAR 2035 CRASH RATE REDUCTION CALCULATIONS (AIS)

KABCO Type →													
	O No Injury		**C** Possible Injury		**B** Non-Incapacitating		**A** Incapacitating		**K** Killed		**U** Injured Severity Unknown		**Crash Rate Reduction (crashes/HMVMT)**
AIS Rating System	Number	Factor	Number	Factor	Number	Factor	Number	Factor	Number	Factor	Number	Factor	
0		0.92534		0.23437		0.08347		0.03437		0.00000		0.21538	-5.64509E+00
1		0.07257		0.68946		0.76843		0.55449		0.00000		0.62728	-1.70159E+00
2		0.00198		0.06391		0.10898		0.20908		0.00000		0.10400	-2.46724E-01
3	-5.82419E+00	0.00008	0.00000E+00	0.01071	-7.44523E-01	0.03191	-3.14707E-01	0.14437	-7.11595E-02	0.00000	-8.48607E-01	0.03858	-1.02397E-01
4		0.00000		0.00142		0.00620		0.03986		0.00000		0.00442	-2.09111E-02
5		0.00003		0.00013		0.00101		0.01783		0.00000		0.01034	-1.53125E-02
Fatal		0.00000		0.00000		0.00000		0.00000		1.00000		0.00000	-7.11595E-02

Source: National Highway Traffic Safety Administration, July 2011.

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]	[O]	[P]	[Q]	[R]	[S]
Column Source	{1,2}	{1,2}	{1,2}	{1,2}	{1,2}	{1,2}	{1,2}	{3}	{4}	{5}	{6}	{7}	{8}	{9}				
Constant Source								$ 3,878	$ 27,600	$ 432,400	$ 966,000	$ 2,447,200	$ 5,455,600	$ 9,200,000					
Equation								[B] x {3}	[C] x {4}	[D] x {5}	[E] x {6}	[F] x {7}	[G] x {8}	[H] x {9}		SUM([I:O])	[P] / (1.07^[S])	[P] / (1.03^[S])	
	CRASH RATE REDUCTION (BY AIS Rating Category)							ANNUAL CRASH REDUCTION BENEFIT (BY AIS Rating Category)								Total Crash Reduction Benefit	7% NPV Maintenance Cost Reduction	3% NPV Maintenance Cost Reduction	Year
YEAR	0	1	2	3	4	5	Fatal	0	1	2	3	4	5	Fatal					
2014								$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ -	$ -	$ -	0
2015								$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ -	$ -	$ -	1
2016								$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ -	$ -	$ -	2
2017								$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ -	$ -	$ -	3
2018								$ -	$ -	$ -	$ -	$ -	$ -	$ -		$ -	$ -	$ -	4
2019	-1.80543	-0.46611	-0.06927	-0.03124	-0.00724	-0.00385	-0.03753	$ 7,001	$ 12,865	$ 29,952	$ 30,174	$ 17,707	$ 21,020	$ 345,232		$ 463,951	$ 330,791	$ 400,208	5
2020	-2.04541	-0.54333	-0.08036	-0.03568	-0.00809	-0.00457	-0.03963	$ 7,931	$ 14,996	$ 34,748	$ 34,471	$ 19,799	$ 24,928	$ 364,572		$ 501,444	$ 334,133	$ 419,951	6
2021	-2.28538	-0.62055	-0.09145	-0.04013	-0.00895	-0.00529	-0.04173	$ 8,862	$ 17,127	$ 39,544	$ 38,767	$ 21,890	$ 28,835	$ 383,911		$ 538,937	$ 335,623	$ 438,205	7
2022	-2.52536	-0.69777	-0.10254	-0.04458	-0.00980	-0.00600	-0.04383	$ 9,792	$ 19,258	$ 44,339	$ 43,063	$ 23,982	$ 32,743	$ 403,251		$ 576,429	$ 335,487	$ 455,038	8
2023	-2.76534	-0.77498	-0.11363	-0.04903	-0.01065	-0.00672	-0.04593	$ 10,723	$ 21,390	$ 49,135	$ 47,360	$ 26,074	$ 36,650	$ 422,591		$ 613,922	$ 333,933	$ 470,520	9
2024	-3.00532	-0.85220	-0.12472	-0.05347	-0.01151	-0.00743	-0.04804	$ 11,653	$ 23,521	$ 53,931	$ 51,656	$ 28,165	$ 40,557	$ 441,931		$ 651,414	$ 331,146	$ 484,713	10
2025	-3.24530	-0.92942	-0.13582	-0.05792	-0.01236	-0.00815	-0.05014	$ 12,584	$ 25,652	$ 58,727	$ 55,952	$ 30,257	$ 44,465	$ 461,270		$ 688,907	$ 327,295	$ 497,681	11
2026	-3.48528	-1.00663	-0.14691	-0.06237	-0.01322	-0.00887	-0.05224	$ 13,515	$ 27,783	$ 63,522	$ 60,249	$ 32,349	$ 48,372	$ 480,610		$ 726,400	$ 322,530	$ 509,482	12
2027	-3.72526	-1.08385	-0.15800	-0.06682	-0.01407	-0.00958	-0.05434	$ 14,445	$ 29,914	$ 68,318	$ 64,545	$ 34,440	$ 52,280	$ 499,950		$ 763,892	$ 316,988	$ 520,173	13
2028	-3.96524	-1.16107	-0.16909	-0.07126	-0.01493	-0.01030	-0.05644	$ 15,376	$ 32,046	$ 73,114	$ 68,841	$ 36,532	$ 56,187	$ 519,290		$ 801,385	$ 310,791	$ 529,810	14
2029	-4.20522	-1.23829	-0.18018	-0.07571	-0.01578	-0.01102	-0.05855	$ 16,306	$ 34,177	$ 77,909	$ 73,138	$ 38,624	$ 60,094	$ 538,629		$ 838,877	$ 304,048	$ 538,443	15
2030	-4.44520	-1.31550	-0.19127	-0.08016	-0.01664	-0.01173	-0.06065	$ 17,237	$ 36,308	$ 82,705	$ 77,434	$ 40,715	$ 64,002	$ 557,969		$ 876,370	$ 296,857	$ 546,125	16
2031	-4.68517	-1.39272	-0.20236	-0.08461	-0.01749	-0.01245	-0.06275	$ 18,167	$ 38,439	$ 87,501	$ 81,730	$ 42,807	$ 67,909	$ 577,309		$ 913,863	$ 289,306	$ 552,902	17
2032	-4.92515	-1.46994	-0.21345	-0.08905	-0.01835	-0.01316	-0.06485	$ 19,098	$ 40,570	$ 92,296	$ 86,027	$ 44,899	$ 71,817	$ 596,648		$ 951,355	$ 281,472	$ 558,821	18
2033	-5.16513	-1.54716	-0.22454	-0.09350	-0.01920	-0.01388	-0.06696	$ 20,028	$ 42,702	$ 97,092	$ 90,323	$ 46,990	$ 75,724	$ 615,988		$ 988,848	$ 273,425	$ 563,926	19
2034	-5.40511	-1.62437	-0.23563	-0.09795	-0.02006	-0.01460	-0.06906	$ 20,959	$ 44,833	$ 101,888	$ 94,619	$ 49,082	$ 79,632	$ 635,328		$ 1,026,340	$ 265,226	$ 568,260	20
2035	-5.64509	-1.70159	-0.24672	-0.10240	-0.02091	-0.01531	-0.07116	$ 21,889	$ 46,964	$ 106,684	$ 98,916	$ 51,174	$ 83,539	$ 654,668		$ 1,063,833	$ 256,930	$ 571,863	21
2036	-5.88507	-1.77881	-0.25782	-0.10684	-0.02177	-0.01603	-0.07326	$ 22,820	$ 49,095	$ 111,479	$ 103,212	$ 53,265	$ 87,446	$ 674,007		$ 1,101,326	$ 248,584	$ 574,774	22
2037	-6.12505	-1.85603	-0.26891	-0.11129	-0.02262	-0.01674	-0.07536	$ 23,751	$ 51,226	$ 116,275	$ 107,508	$ 55,357	$ 91,354	$ 693,347		$ 1,138,818	$ 240,230	$ 577,030	23
2038	-6.36503	-1.93324	-0.28000	-0.11574	-0.02348	-0.01746	-0.07747	$ 24,681	$ 53,358	$ 121,071	$ 111,805	$ 57,449	$ 95,261	$ 712,687		$ 1,176,311	$ 231,906	$ 578,667	24
2039	-6.60501	-2.01046	-0.29109	-0.12019	-0.02433	-0.01818	-0.07957	$ 25,612	$ 55,489	$ 125,866	$ 116,101	$ 59,540	$ 99,169	$ 732,027		$ 1,213,804	$ 223,642	$ 579,719	25
20-Year Project Life Present through 2039																	$ 6,190,340	$ 10,936,312	

Sources:

{1} The annual crash reduction benefits by AIS Rating for year 2019 are taken from cells N38 to N44 in the [Regional Crash Reduction Data] tab.

{2} The annual crash reduction benefits by AIS Rating for year 2035 are taken from cells N70 to N76 in the [Regional Crash Reduction Data] tab.

{3} Value of Property Damage Only Crashes *The Economic Impact of Motor Vehicle Crashes 2000*
  Note: Value adjusted from 2010$ to 2013$ using the BLS GDP deflator method
  Link: http://www.nhtsa.gov/DOT/NHTSA/Communication%20&%20Consumer%20Information/Articles/Associated%20Files/EconomicImpact2000.pdf

{4} Value of AIS Type 1 Crashes *Guidance on Treatment of the Economic Value of Statistical Life in U.S. Department of Transportation Analyses* (2013)
  Link: http://www.dot.gov/office-policy/transportation-policy/guidance-treatment-economic-value-statistical-life

{5} Value of AIS Type 2 Crashes *Guidance on Treatment of the Economic Value of Statistical Life in U.S. Department of Transportation Analyses* (2013)
  Link: http://www.dot.gov/office-policy/transportation-policy/guidance-treatment-economic-value-statistical-life

{6} Value of AIS Type 3 Crashes *Guidance on Treatment of the Economic Value of Statistical Life in U.S. Department of Transportation Analyses* (2013)
  Link: http://www.dot.gov/office-policy/transportation-policy/guidance-treatment-economic-value-statistical-life

{7} Value of AIS Type 4 Crashes *Guidance on Treatment of the Economic Value of Statistical Life in U.S. Department of Transportation Analyses* (2013)
  Link: http://www.dot.gov/office-policy/transportation-policy/guidance-treatment-economic-value-statistical-life

{8} Value of AIS Type 5 Crashes *Guidance on Treatment of the Economic Value of Statistical Life in U.S. Department of Transportation Analyses* (2013)
  Link: http://www.dot.gov/office-policy/transportation-policy/guidance-treatment-economic-value-statistical-life

{9} Value of AIS Type 6 (Fatality) Crashes *Guidance on Treatment of the Economic Value of Statistical Life in U.S. Department of Transportation Analyses* (2013)
  Link: http://www.dot.gov/office-policy/transportation-policy/guidance-treatment-economic-value-statistical-life

[A]	[B]	[C]	[D]	[E]	[G]	[H]	[I]	[J]	[K]
Column Source		{1}	{2}	{3}	{4}	{5}			
Equation							SUM([C]:[H])	[I] / (1.07^[A])	[I] / (1.03^[A])
Project Year	Calendar Year	Project Costs	Maintenance Savings Benefit	Economic Development Benefits (Costs)	Geometric Crash Reduction Benefits (Costs)	Regional Crash Reduction Benefits (Costs)	Net Benefits (Costs)	7% NPV Total Net Benefits (Costs)	3% NPV Total Net Benefits (Costs)
0	2014	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
1	2015	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2	2016	$ (4,105,263)	$ -	$ -	$ -	$ -	$ (4,105,263)	$ (3,585,696)	$ (3,869,604)
3	2017	$ (16,421,053)	$ -	$ -	$ -	$ -	$ (16,421,053)	$ (13,404,470)	$ (15,027,589)
4	2018	$ (5,473,684)	$ -	$ -	$ -	$ -	$ (5,473,684)	$ (4,175,847)	$ (4,863,298)
5	2019	$ -	$ 13,750	$ 2,647,849	$ 3,701,948	$ 463,951	$ 6,827,498	$ 4,867,912	$ 5,889,460
6	2020	$ -	$ 13,750	$ -	$ 3,695,935	$ 501,444	$ 4,211,128	$ 2,806,053	$ 3,526,754
7	2021	$ -	$ 13,750	$ -	$ 3,689,921	$ 538,937	$ 4,242,608	$ 2,642,083	$ 3,449,629
8	2022	$ -	$ 13,750	$ -	$ 3,683,908	$ 576,429	$ 4,274,088	$ 2,487,558	$ 3,374,004
9	2023	$ -	$ 13,750	$ -	$ 3,677,895	$ 613,922	$ 4,305,567	$ 2,341,943	$ 3,299,859
10	2024	$ -	$ 13,750	$ -	$ 3,671,882	$ 651,414	$ 4,337,047	$ 2,204,735	$ 3,227,170
11	2025	$ -	$ 13,750	$ -	$ 3,665,869	$ 688,907	$ 4,368,526	$ 2,075,455	$ 3,155,916
12	2026	$ -	$ 13,750	$ -	$ 3,659,856	$ 726,400	$ 4,400,006	$ 1,953,655	$ 3,086,076
13	2027	$ -	$ 13,750	$ -	$ 3,653,843	$ 763,892	$ 4,431,485	$ 1,838,909	$ 3,017,626
14	2028	$ -	$ 13,750	$ -	$ 3,647,830	$ 801,385	$ 4,462,965	$ 1,730,815	$ 2,950,546
15	2029	$ -	$ 13,750	$ -	$ 3,641,817	$ 838,877	$ 4,494,445	$ 1,628,994	$ 2,884,813
16	2030	$ -	$ 13,750	$ -	$ 3,635,804	$ 876,370	$ 4,525,924	$ 1,533,087	$ 2,820,406
17	2031	$ -	$ 13,750	$ -	$ 3,629,791	$ 913,863	$ 4,557,404	$ 1,442,757	$ 2,757,304
18	2032	$ -	$ 13,750	$ -	$ 3,623,778	$ 951,355	$ 4,588,883	$ 1,357,685	$ 2,695,485
19	2033	$ -	$ 13,750	$ -	$ 3,617,765	$ 988,848	$ 4,620,363	$ 1,277,569	$ 2,634,928
20	2034	$ -	$ 13,750	$ -	$ 3,611,752	$ 1,026,340	$ 4,651,842	$ 1,202,124	$ 2,575,612
21	2035	$ -	$ 13,750	$ -	$ 3,605,739	$ 1,063,833	$ 4,683,322	$ 1,131,084	$ 2,517,516
22	2036	$ -	$ 13,750	$ -	$ 3,599,726	$ 1,101,326	$ 4,714,802	$ 1,064,193	$ 2,460,620
23	2037	$ -	$ 13,750	$ -	$ 3,593,713	$ 1,138,818	$ 4,746,281	$ 1,001,213	$ 2,404,901
24	2038	$ -	$ 13,750	$ -	$ 3,587,700	$ 1,176,311	$ 4,777,761	$ 941,919	$ 2,350,342
25	2039	$ -	$ 13,750	$ -	$ 3,581,687	$ 1,213,804	$ 4,809,240	$ 886,099	$ 2,296,920
20-Year Project Life Present through 2039								$ 17,249,828	$ 39,615,396

Sources: {1} Data from [Project Cost : Column F]
{2} Data from [Maintenance Benefit : Column E]
{3} Data from [Economic Competitiveness : Column F]
{4} Data from [Geometric Crash Reduction : Column P]
{5} Data from [Regional Crash Reduction : Column P]

Appendix B

Letters of Support

CAROLYN R. DAVIS
COUNCILMEMBER
DISTRICT 7

Council Committees:
Housing - Chair
Ad Hoc Legislative
Public Safety
Quality of Life

Arts, Culture & Libraries

April 24, 2014

The Honorable Anthony Fox
Secretary of Transportation
United States Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

RE: NCTCOG – 2014 TIGERS Grant Application
     S.M. Wright Phase IIB Project – Dallas, Texas

Dear Secretary Foxx:

I would like to express my support for the United States Department of Transportation (USDOT) 2014 Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grant application submitted by the North Central Texas Council of Governments (NCTCOG) for the S.M. Wright Phase IIB project in Dallas, Texas.

The S.M. Wright project will provide an economically, distressed area additional Interstate access to/from Interstate Highway 45. This project evolved from community concerns expressed during the 2013 environmental clearance of S.M. Wright Phases I & II. Specifically, it addresses the constrained highway access provided to areas of South Dallas, which are being targeted for economic development. Interstate access to/from IH 45, in the vicinity of Grand Avenue, would catalyze this on-going development and improve the quality of life for South Dallas residents.

Again, I fully support the 2014 TIGER Grant application submitted by NCTCOG for the S.M. Wright Phase IIB project. Thank you for your time and consideration of this project.

Sincerely,

Carolyn R. Davis

OFFICE OF THE CITY COUNCIL   1500 MARILLA ST 5FS   DALLAS TEXAS 75201   TELEPHONE 214-670-4689   FAX 214-670-1819

April 23, 2014

The Honorable Anthony Fox
Secretary of Transportation
United States Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

Dear Secretary Foxx:

I would like to express my support for the United States Department of Transportation (USDOT) 2014 Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grant application submitted by the North Central Texas Council of Governments (NCTCOG) for the S.M. Wright Phase IIB project in Dallas, Texas.

The S.M. Wright project will provide an economically, distressed area additional Interstate access to/from Interstate Highway 45. This project evolved from community concerns expressed during the 2013 environmental clearance of S.M. Wright Phases I & II. Specifically, it addresses the constrained highway access provided to areas of South Dallas, which are being targeted for economic development. Interstate access to/from IH 45, in the vicinity of Grand Avenue, would catalyze this on-going development and improve the quality of life for South Dallas residents.

Again, I fully support the 2014 TIGER Grant application submitted by NCTCOG for the S.M. Wright Phase IIB project. Thank you for your time and consideration of this project.

Sincerely,

Helen Giddings

Helen Giddings

Committees: Appropriations • Vice Chair - State Affairs • Calendars

P.O. Box 2910
Austin, Texas 78768-2910
512-463-0953
FAX: 512-463-5887

1510 N. Hampton, Suite #340
DeSoto, Texas 75115
972-224-6795
FAX: 972-228-6796

40 YEARS!

RTC
Regional Transportation Council

The Transportation Policy Body for the North Central Texas Council of Governments
(Metropolitan Planning Organization for the Dallas-Fort Worth Region)

April 21, 2014

The Honorable Anthony Foxx
Secretary of Transportation
United States Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

Dear Secretary Foxx:

On behalf of the Regional Transportation Council (RTC), which serves as the Metropolitan Planning Organization (MPO) for the Dallas-Fort Worth area, I am pleased to support the 2014 Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grant application to the US Department of Transportation from the North Central Texas Council of Governments (NCTCOG) for the S.M. Wright Phase IIB project in Dallas, Texas. A membership roster of the RTC is enclosed.

The S.M. Wright project will provide an economically distressed area with additional Interstate access to/from Interstate Highway (IH) 45. This project evolved from community concerns expressed during the 2013 environmental clearance of S.M. Wright Phases I & II. Specifically, it addresses the constrained highway access provided to areas of South Dallas which are being targeted for economic development. Interstate access to/from IH 45 in the vicinity of Grand Avenue would catalyze this ongoing development and improve the quality of life for South Dallas residents.

The project is included in Mobility 2035: The Metropolitan Transportation Plan for North Central Texas – 2013 Update. All federally funded surface transportation projects must also be included in the Transportation Improvement Program. The project is included in the 2013-2016 Transportation Improvement Program for North Central Texas.

Again, the RTC supports NCTCOG's 2014 TIGER grant application for the S.M. Wright Phase IIB project. Thank you for your time and consideration. If you have any questions, please contact Michael Morris, P.E., Director of Transportation for NCTCOG, at (817) 695-9241.

Sincerely,

Kathryn Wilemon
Chair, Regional Transportation Council
Mayor Pro Tem, City of Arlington

RH:jh
Enclosure

The Senate of The State of Texas

Senator Royce West
District 23

President Pro Tempore
2006

SENATE COMMITTEES:

CHAIRMAN
Jurisprudence

MEMBER
Education
Finance
Health and Human Services
Higher Education

DISTRICT OFFICE:
5787 South Hampton Road
Suite 385
Dallas, Texas 75232
214/467-0123
Fax: 214/467-0050

DISTRICT OFFICE:
2612 Main Street, Suite 100
Dallas, Texas 75226
214/741-0123
Fax: 214/749-7830

CAPITOL OFFICE:
P.O. Box 12068
Austin, Texas 78711
512/463-0123
Fax: 512/463-0299
Dial 711 for Relay Calls

April 23, 2014

The Honorable Anthony Fox
Secretary of Transportation
United States Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

Dear Secretary Foxx:

Early in 2013, I received the first of what would be numerous calls to my office from constituents concerned with plans associated with components of the S.M. Wright project. An issue was raised from review of preliminary draft proposals feared to reduce access to and from Interstate Highway 45 (IH45) that passes in part, through my state senatorial district and also through the South Dallas community.

What took place from that point was an exercise in open and responsive government and public participation. Immediately, additional meetings were convened where local Texas Department of Transportation (TxDOT) and regional transportation officials met with community leaders and the public to hear their concerns firsthand. In May 2013, I held a joint Town Hall Meeting along with State Rep. Eric Johnson, TxDOT and City of Dallas officials where the issues with on and off ramps were resolved. But what also emerged from that meeting was the community's request for additional access to IH45. The revised plans were presented to the community at a public hearing held in June 2013. It contained the S.M. Wright IIB proposal that is now before you.

I wholeheartedly lend my support for the United States Department of Transportation (USDOT) 2014 Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grant application submitted by the North Central Texas Council of Governments (NCTCOG) for the S.M. Wright Phase IIB project in Dallas, Texas.

The S.M. Wright project will provide an economically, distressed area additional interstate access to/from Interstate Highway 45. This project evolved from community concerns expressed during the 2013 environmental clearance of S.M. Wright Phases I & II. Specifically, it addresses the constrained highway access provided to areas of South Dallas, which are being targeted for economic development. Interstate access to/from IH 45, in the vicinity of Grand Avenue, would catalyze this on-going development and improve the quality of life for South Dallas residents.

Again, I fully support the 2014 TIGER Grant application submitted by NCTCOG for the S.M. Wright Phase IIB project. It is consistent with my September 2009 letter of support submitted to the USDOT for the S.M. Wright Phase II proposal that I have been involved with since the overall plan's inception. Thank you for your time and consideration of this project.
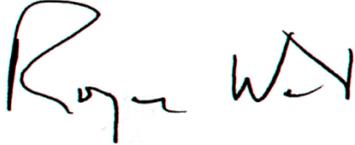
Sincerely,

Royce West
Texas Senate
District 23

RW/kb