



TMS Area Alternative Population and Employment Projections Methodology

City of Fort Worth Planning and Development Department

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1. Introduction

The Texas Motor Speedway (TMS) area alternative population and employment projections were developed to provide an alternative data set for the transportation component of the TMS area master plan. The data set provides projected population and employment figures for the years 2015 and 2030. The transportation study used this data set for traffic modeling purposes along with the North Central Texas Council of Governments (NCTCOG) regionally approved data prepared for the Mobility 2025 Plan. From these model runs performed by NCTCOG, the transportation study consultant, Kimley-Horn, provided analysis and recommendations for the TMS area master plan. The population and employment projections were also used for analysis purposes by the City of Fort Worth Planning and Development Department to develop land use recommendations for the TMS study area master plan.

This report documents the method and organization of the TMS area population and employment projections. The intent is to explain the process used to produce the population and employment projections as well as serving as a guideline for future population and employment projections produced by the Planning and Development Department. The TMS alternative population and employment projections flow model, which illustrates the overall process, is located in Attachment A. The Planning and Development Department's role in the transportation study included producing these population and employment projections and subsequent review of the recommendations developed by the consultant. To see the full duties of Kimley-Horn and the objectives of the TMS transportation study, refer to the consultant's Scope of Work found in Attachment B.

2. Relationship to the Texas Motor Speedway Area Master Plan

At the request of the City Council, City staff worked with various interested parties to prepare a master plan for the Texas Motor Speedway area.

Texas Motor Speedway began construction in 1995 on 1,500 acres of land in the northwest quadrant of the I-35W/SH 114 interchange in Denton County. Race events began in 1997. TMS can accommodate in excess of 200,000 spectators and currently hosts three nationally sanctioned race weekends (2 Sprint Cup Series, 1 Indy Racing League) and numerous smaller events throughout the year. The grounds include 660 acres of parking for up to 80,000 vehicles and 6,800 camp sites, providing amenities for up to 40,000 campers on Nextel Cup Series race weekends. The cumulative economic impact of TMS on the local economy is expected to reach \$3 billion by 2008 (Insight Research Corporation, *Texas Motor Speedway Complex, Historic and Forecast Economic, Employment and Tax Revenue Impact Analysis*, 2004).

As the City of Fort Worth continues to experience rapid growth in the Far North Planning Sector, development interest has increased concerning the land near TMS. The Planning and Development Department—in coordination with the Economic and Community Development Department, the Transportation and Public Works Department, and the

Aviation Department—addressed this development interest and associated compatibility issues by preparing a master plan for the area surrounding Texas Motor Speedway. The results of the master plan include the following:

- Assessment of the speedway’s economic and environmental impacts on the surrounding area and the broader region.
- Recommendations for compatible land uses within the speedway’s noise and traffic impact area.
- Recommendations for appropriate infrastructure improvements to support policies and strategies in the adopted Comprehensive Plan.

An advisory committee of stakeholders appointed by the Mayor includes neighboring property owners; public officials from the City of Fort Worth, the Town of Northlake, and Denton County; the Texas Department of Transportation; the 35W Coalition; and other interested parties. The transportation study and the population and employment projections assisted the overall master planning effort by providing transportation infrastructure recommendations to the advisory committee.

3. TMS Study Area

The initial study area was bounded by developing Eagle Parkway to the south, the BNSF Railroad to the west, the propose route of FM 1171 to the north, and the Denton Creek floodplain to the east. For the purposes of the population and employment projections, a larger study area was used to capture a more complete data set for transportation analysis. This larger study area boundary is an approximate six-mile radius from the perimeter of TMS and encompasses 117 traffic survey zones (TSZ). A TSZ is a geographic unit used by NCTCOG for forecast and modeling purposes.

The population and employment projection study area included property within 16 separate jurisdictions: Argyle, Bartonville, City of Denton, Denton County, Flower Mound, Fort Worth, Haslet, Justin, Keller, Marshall Creek, New Fairview, Northlake, Roanoke, Southlake, Tarrant County, Trophy Club and Westlake.

4. Base Data Collection

Base data included:

- 2007 base population (July, 2007)
- 2007 base employment (July, 2007)
- Development and platting activity
- Comprehensive Plan Policies
- Current land use
- Future Land Use designations

The base data preparation process is illustrated in Attachment C.

Base Population

The 2007 base population was established through building permit data, parcel data, and 2005 aerial photography (2007 aerial photography was not yet available). In TSZ's within the City of Fort Worth, 2000 NCTCOG data and, when applicable, final building permit data through 2006 were used for base household estimates. For TSZ's outside the City of Fort Worth, parcel data and 2005 aerial photography were used for base household estimates. In both cases, staff used the NCTCOG approved household multipliers to produce the final 2007 base population data.

Base Employment

The 2007 base employment was established through various sources. The most comprehensive list of employers was provided by the Texas Workforce Commission (TWC). Using the TWC research website (<http://www.texasindustryprofiles.com/>), staff was able to identify over 500 employers within the study area, each with a corresponding employee count range. To confirm employee counts, a phone survey to any employer with 100 or more employees was used. Additional employers were identified through information provided by jurisdictions and major property owners, resulting in the identification of approximately 900 employers in the study area.

Development and Platting Activity

Research by staff revealed numerous proposed developments in the study area that would affect future population and employment projections. To ensure the most accurate population and employment projections possible, these proposed developments were taken into consideration. The type and size of these developments vary, but every attempt was made to include all known proposals. The list of the known proposed developments, with forecast year build-out – including master planned communities, commercial/mixed use developments, and industrial developments – is found in Attachment D. Platting activity was also taken into consideration. Final plats that produced individual lots for residential subdivisions, but did not yet have final building permits, were considered as known development activity. The potential population capacities of these final plats were included in the population projections. While development proposals contain no guarantee of construction, they represent best available information for a specific moment in time and typically correlate well with ultimate development patterns.

Comprehensive Plan Policies

A literary review of the comprehensive plans for jurisdictions within the study area was conducted. Land use, transportation, and economic development elements of each plan were examined for policies that impact the study area.

Current Land Use

Current land use codes were obtained from the Tarrant County Appraisal District.

Standardized Future Land Use

In order to analyze the future pattern of development and to establish the allowable intensity of development in the study area, future land use designations from the multiple jurisdictions were examined. This process included phone interviews and email correspondence with staff of the cities within the study area and staff review of comprehensive plans, future land use maps, zoning ordinances, and zoning maps. Planning and Development staff then aggregated the various future land use designations into five residential use categories, five non-residential use categories, one environmental category, and one public use category to create a standardized future land use map of the entire study area. A listing of future land use designations used by each jurisdiction within the study area is presented in Attachment E, along with their corresponding standardized future land use designations.

5. Total Capacity by Future Land Use

The standardized future land use map described above was used to establish the total population and employment capacity of the study area. To calculate a defensible level of development intensity or density for each land use type, a multi-step process was employed. The coefficients used were taken or modified from the APA Planners Press book, *Planner's Estimating Guide: Projecting Land-Use and Facility Needs* by Arthur C. Nelson. A literature review of methodology documents for similar efforts in the states of Oregon, Washington, and Arizona were used to supplement the information provided in the *Planner's Estimating Guide*. These factors were also used to produce population and employment projections for known proposed developments if none were provided by the developers. The factors described below can be found in Attachment F.

Development Constraints and Public Facilities

Several factors that limit the area available on a given site for buildings were taken into consideration before any factors associated with specific land use types were examined. Many of the jurisdictions in the area do not allow development within the 100-year flood plain. After consultation with the City of Fort Worth's floodplain coordinator, staff decided it would also be a reasonable assumption that minimal future development will occur within the 100-year flood plain in Fort Worth. Thus, all areas designated as within the 100-year flood plain were removed from consideration as developable land. Gas well sites were considered as another limiting factor. For the purpose of this study, a five-acre perimeter buffer was assumed around each existing gas well site. For the 2015 forecast, no development was projected within this perimeter. In anticipation of many gas wells being depleted by 2030, this five-acre perimeter was removed from the gas wells for that forecast year. It is important to note that many gas well sites located in land that was not projected to be developed by 2030 would be presumed to be producing wells at that time

(i.e. not all gas wells were assumed to be depleted and their surrounding land developed by 2030, just the gas wells in the most suitable areas for development). For the remaining vacant land, gross acreage was reduced 25% to account for public facilities, including street rights-of-way.

Residential Factors

Dwelling unit per acre (D.U. / acre) coefficients were established for each residential future land use category. As a reminder, the TMS future land use categories were aggregated from individual jurisdictions' future land use categories based on comparable densities. The dwelling unit per acre coefficient was derived from this density range. Since public facilities, including rights-of-way, were taken into consideration as an overall building limitation factor, the D.U. / acre is a net density coefficient rather than a gross density coefficient. Once the dwelling units per acre were applied to each residential land use type, NCTCOG's approved household size coefficients for residents per household type (2.77/single-family, 2.44/multifamily) were used to generate the capacity of each traffic survey zone (TSZ). Vacancy rates of 2% for single-family residences and 6% for multifamily residences were then used to adjust the capacity of each TSZ.

Non-Residential Factors

Floor-area ratios (FAR) were required to establish the development intensity allowed by the non-residential future land use designations. FAR is simply a measurement of the total square footage of a building permitted on a site compared to the total land area of the site. For example, a building permitted to be two stories tall that is built up to all property lines would have a FAR of 2.0. Conversely, a one story building limited to covering 50 percent of the site would have a far of 0.5. For the purposes of this study, suitable FARs were identified for each aggregated future land use category by taking a sample survey of existing structures within Tarrant County that matched the land use type. For example, the FAR for industrial future land use designations was based on the existing FAR of 40 industrial business locations. Existing businesses were chosen based on the anticipated building types in the study area and date of construction (presuming that newly constructed buildings would better represent future buildings in the study area). The FAR for each non-residential future land use type was applied to the available net land area to produce the building square footage for that land use type by TSZ. Efficiency ratios and vacancy rates were then applied to calculate the usable building square footage for each non-residential area depicted on the aggregated future land use map by TSZ. The final square footage was multiplied by a square-footage-per-employee estimate established by NCTCOG, which produced an employment figure for each non-residential future land use type by TSZ.

Other Factors

Public employees were added to the study area's projected employment figures after the suitability rankings and land consumption rates were applied. Appropriate city

departments provided employment figures that staff used to establish a ratio of employees to population. These ratios were used to calculate the number of additional public employees necessary to serve each additional 1,000 persons for the projected 2015 and 2030 populations.

6. Land Consumption

A rate of land consumption for residential and non-residential development was used to calculate the population and employment forecasts for 2015 and 2030. The land consumption rate was determined by analyzing City of Fort Worth building permit activity within the study area from January 2000 through July 2007 (years for which the most accurate data was available for the area). The annual residential consumption rate was determined to be 767 acres per year and the annual non-residential consumption rate was 359 acres per year.

7. Land Suitability Ranking

Determining the population and employment capacity of the study area based on adopted future land use plans was only one step in the population and employment projection process. Developable land had to be allocated for development within the time horizons of interest, at a reasonable rate of land consumption. However, the allowable density and intensity of land uses on that land are dictated by future land use plans, which are depicted on adopted maps that guide development decisions. Therefore, the geographic location of land projected for development greatly impacted the forecast population and employment.

Land suitability rankings were established to determine the mostly likely areas of undeveloped land that would be developed by the forecast years. To rank undeveloped land within the study area for development suitability, recent correlating criteria were identified by analyzing preliminary platting activity within the City of Fort Worth from January 2003 – when preliminary plat data was first recorded in the City’s geographic information system (GIS) database – through July 2007. Spatial analysis revealed that patterns of existing development were strongly related (sometimes inversely) to certain transportation facilities and to recently developed areas, reflecting the importance to access and proximity to existing or recently installed water and sewer lines. Using the City’s GIS, buffers of varying distances were applied to the potential individual criterion for determining development activity, and the percentages of the preliminary platting activity within those buffers were identified. The chosen criteria were weighted based on the percentage of development activity occurring within the buffers. The chosen criteria for residential land suitability were: Alliance Airport, I-35W corridor, other major highways, proposed master thoroughfare plan (arterials only), recently developed areas, and high growth cities. The chosen criteria for non-residential land suitability were the same, with the addition of the Intermodal Transportation Center. Using GIS, predictive scores from each weighted criterion were combined to yield a total development suitability rank for all land within the study area. Residential development suitability rankings were calculated and mapped separately from non-residential land for 2015, and

the exercise was repeated for 2030. The preliminary platting analysis and land suitability criteria can be found in Attachment G and H.

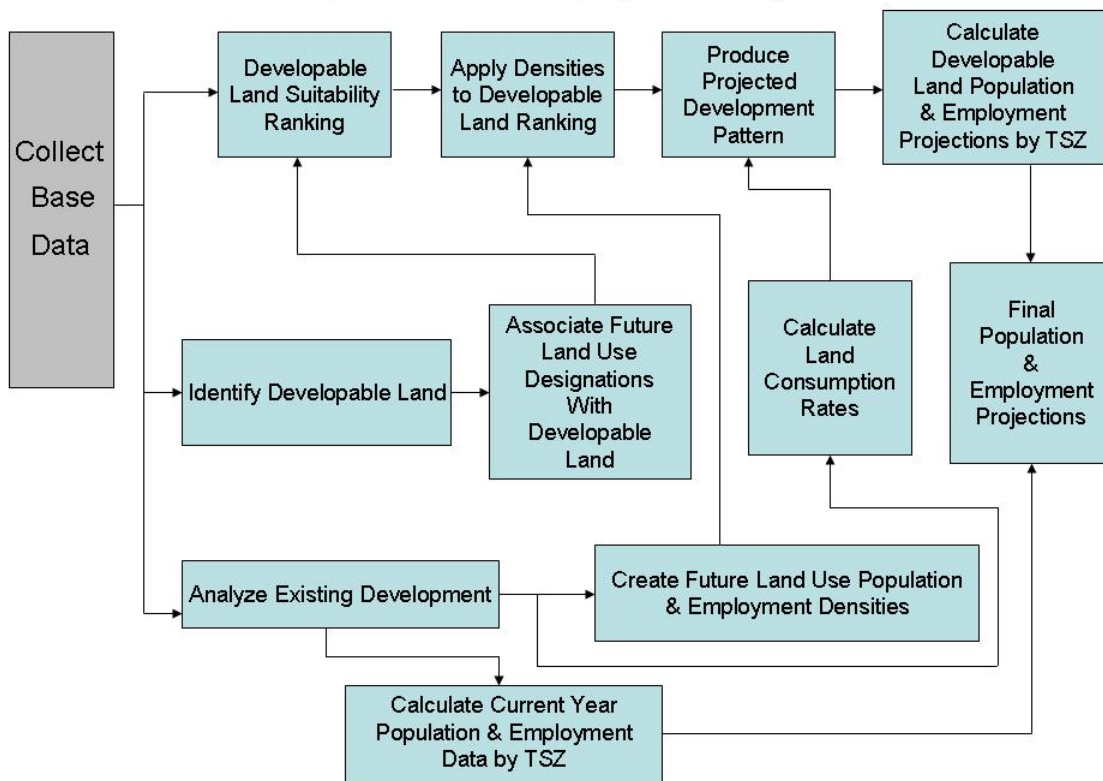
8. 2015 and 2030 Population and Employment Forecasts

By using recent land consumption rates and applying development suitability rankings to vacant land, Planning and Development Department staff was able to project the expected development pattern for the study area. Staff used professional judgment to make appropriate adjustments to the development pattern until final projected development patterns for 2015 and 2030 were determined. The land consumed by 2015 was analyzed for population and employment projections according to its future land use categories and these projections were added to the 2007 base data, the known proposed developments, and final plat activity to produce a final 2015 population and employment forecast. The process was repeated for the 2030 forecast, except that the land consumed in the 2015 forecast was included in the recently developed area criterion. Projections based on known proposed developments were phased according to the developers' plans, with the total population and employment assigned to the 2015 or 2030 thresholds as appropriate. All other criteria and consumption rates were held constant. For transportation modeling purposes, these alternative population and employment projections were provided to NCTCOG in map and table form, broken down by transportation survey zone.

Demographic Data Comparison		
	Population	Employment
Base 2007	143,119	45,896
NCTCOG 2015	207,488	123,627
CFW Alternative 2015	245,022	130,846
NCTCOG 2030	303,994	183,930
CFW Alternative 2030	364,658	192,770

Attachment A: TMS Alternative Population and Employment Projections Flow Model

TMS Alternative Population and Employment Projections Flow Model



Attachment B: Transportation Study Consultant Scope of Work

ATTACHMENT "A"

SCOPE OF SERVICES

TEXAS MOTOR SPEEDWAY (TMS) AREA TRANSPORTATION PLAN

FORT WORTH, TEXAS

PROJECT UNDERSTANDING

The ENGINEER understands that the CITY is currently undertaking a Texas Motor Speedway (TMS) Area Master Plan. The TMS Area Master Plan will assess economic and environmental impacts of the area and recommend compatible land-use and infrastructure improvements for future development surrounding TMS. To complement the TMS Area Master Plan, a transportation planning component is needed. The study area has been defined as FM 407 to the north, Litsey Road to the south, FM 156 on the west, and US 377 on the east.

The goal of the transportation study is to identify and document existing and anticipated deficiencies in transportation services and transportation infrastructure around the Texas Motor Speedway. All of the modeling support will be provided from the North Central Texas Council of Governments (NCTCOG). Components of the area transportation system include the following: freeways, highways, arterial streets, public transportation (bus and rail), pedestrian, and bicycle systems.

This scope of services will provide the CITY with the transportation study needed to complement the TMS Area Master Plan.

SCOPE OF SERVICES

If services beyond those defined in this scope are required, the CITY and ENGINEER shall attempt to negotiate a written amendment to this Agreement. ENGINEER shall not proceed with work on any additional services prior to the CITY and ENGINEER executing a written amendment. The Scope of Services includes the following primary tasks:

- Task 1 – Data Collection
- Task 2 – Data Review
- Task 3 – Transportation Modeling
- Task 4 – Railway Alignment Study
- Task 5 – Cost Benefit Analysis and Project Prioritization
- Task 6 – Documentation
- Task 7 – Presentation of Findings

Task 1 – Data Collection

The ENGINEER will work with the CITY to collect the following data:

- Latest version of the proposed SH 114 Schematic within the Study Area;
- SH 114 Schematic Analysis conducted by TCB in December 2006;
- Latest version of the proposed FM 156 and BNSF rail realignment immediately north of Alliance Airport;
- TxDOT's most current contra-flow traffic management plan for TMS event weekends;
- Latest version of the proposed IH-35W Managed Lanes schematic;
- Most recently available orthophotos of the study area in .sid format;
- NCTCOG 2-foot contours for the study area in GIS format;
- FEMA Floodplain information for the study area in GIS format;
- Readily available above ground franchise utility information;
- Appraisal district parcel data for the study area in GIS format;
- Current City of Fort Worth water and sewer maps for the study area;
- CITY Mobility and Air Quality (MAQ) 2030 transportation network currently under study;
- NCTCOG 2015 and 2030 transportation networks contained in the Mobility 2030 Plan; and
- All recent CITY and TxDOT traffic counts within the study area (e.g. along IH-35W, SH 114, FM 156, Litsey Road, Eagle Parkway, and FM 407).

The CITY will provide the ENGINEER with the following demographic data:

- Regionally approved demographic data for analysis years 2015 and 2030 in a format suitable for use with the regional travel demand model; and
- Alternative demographic data set for analysis years 2015 and 2030 (as developed by the CITY Planning and Development and Transportation / Public Works departments).

Task 2 – Data Review and Preliminary Analysis

The ENGINEER will review the data collected in Task 1 relevant to the study area. Any additional data requests will be provided to the CITY. If the CITY concurs with the need for any additional data, the CITY will collect the additional information or authorize the ENGINEER to perform additional services and collect the additional information.

Task 3 – Modeling

The CITY will coordinate with the NCTCOG to provide the modeling results for the scenarios listed below in GIS format. All modeling work will be performed within the TransCAD software by NCTCOG.

- Two (2) model runs (one for 2015 and one for 2030) using the regionally approved demographic data under the Mobility 2030 Plan (which received federal conformity on June 12, 2007).
- Two (2) model runs (one for 2015 and one for 2030) using the alternative demographic scenario developed by the CITY in Task 1 and a modified Mobility 2030 network. The ENGINEER will provide recommendations to the CITY on potential roadway network modifications that should be included in the Mobility 2030 Plan.

- After reviewing the results of the model runs using the regionally approved and alternative demographic scenarios, the CITY and the ENGINEER will prepare a list of additional roadway network modifications for NCTCOG. NCTCOG will conduct two (2) model runs (one for 2015 and one for 2030) using the alternative demographic scenario developed by the CITY in Task 1 and additional modifications to the Mobility 2030 network.
- The CITY will coordinate with NCTCOG to perform two (2) model runs (one for 2015 and one for 2030) for a TMS special event. The CITY will determine the appropriate roadway network to utilize for this special event analysis. It is anticipated that NCTCOG will code TMS as a special generator for these model runs. In addition, it is anticipated that NCTCOG will include the proposed railway alignment under study in Task 4 and proposed express buss service along IH-35W (from Fort Worth) and SH 114 (from Dallas). If available, the ENGINEER will provide the CITY with the specific preliminary railway alignment information from Task 4 for these model runs.

The ENGINEER will prepare for and attend up to five (5) total meetings with the CITY, NCTCOG, TMS, and/or other stakeholders during this task.

Task 4 – Railway Alignment Study

Using the data collected in Task 1, the ENGINEER shall develop up to three (3) preliminary horizontal alignment alternatives for a connection between the BNSF Railroad and Texas Motor Speedway. The intent of this alignment study is to perform a cursory level analysis of the potential opportunities and constraints to providing this connection in the immediate vicinity of the Texas Motor Speedway. While the focus is to develop a feasible horizontal alignment, available contour and floodplain information will be utilized to develop an alignment without significant vertical challenges. The ENGINEER will develop conceptual planning level cost projections for each alternative. Each alternative will be depicted and mapped in a GIS format with the potential advantages and disadvantages of each option documented in Task 6.

The ENGINEER will prepare for and attend up to three (3) total meetings with the CITY, NCTCOG, TMS, and/or other stakeholders during this task.

Task 5 – Cost Benefit Analysis and Project Prioritization

The ENGINEER will review the results of Tasks 3 and 4 to develop a list of potential improvements and recommendations for the study area transportation system. The ENGINEER will conduct a qualitative cost benefit analysis for each proposed recommendation to develop a prioritization listing of future improvements. It is anticipated that the prioritization will be divided into five (5) categories of need (Very High, High, Medium, Low, and Very Low).

The ENGINEER will prepare for and attend up to two (2) total meetings with the CITY, NCTCOG, TMS, and/or other stakeholders during this task.

Task 6 – Documentation

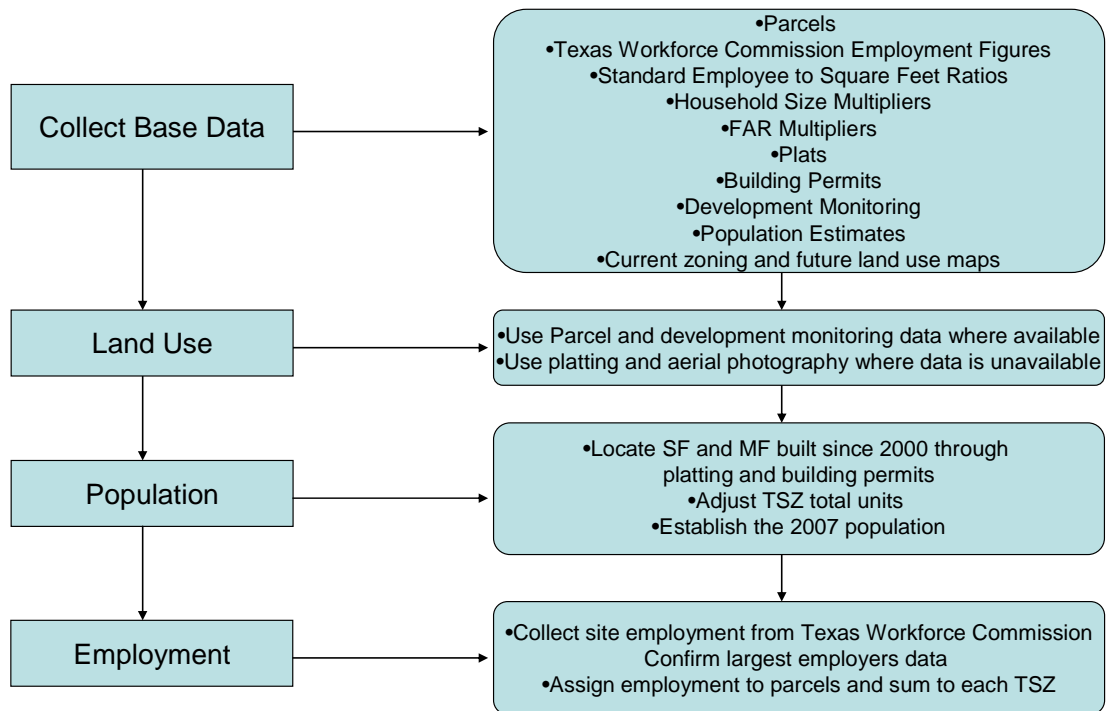
The ENGINEER will prepare a technical memorandum with supporting exhibits that documents the results of Tasks 1 – 5. Five (5) copies of the technical memorandum and an electronic (.pdf) draft will be prepared and submitted to the CITY for review and comments. The ENGINEER will meet with the CITY to receive concurrence regarding the memorandum. The ENGINEER will then incorporate review comments and submit ten (10) copies of the final technical memorandum and an electronic (.pdf) copy to the CITY

Task 7 – Presentation of Findings

The ENGINEER will prepare a summary presentation with supporting exhibits in PowerPoint format for presentation purposes. The ENGINEER will attend and provide technical support for the CITY to present the results of the analysis at up to four (4) committee or stakeholder meetings (i.e. TMS Advisory Committee, ITC, The Fort Worth Transportation Authority Executive Board, etc.) If requested by the CITY, the ENGINEER will present the results of the study at these meetings.

Attachment C: Base Data Preparation Process Chart

2007 Base Data Preparation Process



Attachment D: Known Proposed Developments

Development	Jurisdiction	Type	Population	Employees
Hunters Ranch Phase 1 (2015)	City of Denton	MPC	5,897	0
Cole Ranch (2015)	City of Denton	MPC	13,476	
Hunters Ranch Phase 1 (2015)	City of Denton	MPC	2,717	722
Robson Ranch (2015)	City of Denton	Residential	5,429	0
Belmont (2015)	Argyle, NL	MPC	2,902	187
Canyon Falls (2015)	Argyle, NL, FM	MPC	2,873	4,983
Speedway Town Center (2015)	Northlake	Mixed Use	1,649	3,714
Canyon Falls (2015)	Argyle, NL, FM	MPC	3,513	1,618
Tradition Phase 1-2 (2015)	Fort Worth	MPC	5,781	1,112
Tradition Phase 1-2 (2015)	Fort Worth	MPC	484	0
Tradition Phase 3 (2015)	Fort Worth	MPC	2,795	0
Hardemann Estates (2015)	Justin	Residential	950	0
Reatta Ridge (2015)	Justin	Residential	1,507	0
Speedway Distribution Center (2015)	Fort Worth	Industrial	0	4,959
Briarwyck/Slaughter Ranch (2015)	Roanoke	Residential	1,813	1,588
I35W/SH114 Center (2015)	Fort Worth	Mixed Use	1,757	4,832
Bearfire Resort (2015)	Fort Worth	Recreation	0	2000
Copper Ridge (2015)	Roanoke	Residential	1,086	0
Highlands at Trophy Club (2015)	Trophy Club	Residential	4,246	0
Neighborhood 10 (2015)	Trophy Club	Residential	271	0
Neighborhood 11 (2015)	Trophy Club	Residential	166	0
Churchill Downs (2015)	Trophy Club	Residential	95	0
Alliance Gateway (2015)	Fort Worth	Industrial		1,086
Circle T Ranch Power Center (2015)	Westlake	Commercial	0	2,431
Circle T Ranch Environmental	Westlake	Environmental	0	0
Circle T Ranch Environmental	Westlake	Environmental	0	0
Circle T Ranch Mall (2015)	Westlake	Mixed Use	0	2,618
Alliance Gateway (2015)	Fort Worth	Industrial		1,086
Circle T Ranch Office (2015)	Westlake	Mixed Use	0	2,508
Marshall Ridge (2015)	Keller	Residential	2,478	0
Circle T Ranch ROW	Westlake	ROW	0	0
Lone Star Crossing (2015)	Fort Worth	Commercial	0	2,618
Vaquero (2015)	Westlake	Residential	861	0
Avondale Haslet/287 Junction (2015)	Fort Worth	Commercial	0	842
LaTara (2015)	Haslet	Residential	679	0
North Glen Heights (2015)	Haslet	Residential	551	0
Presidio (2015)	Fort Worth	Mixed Use	2,759	3,560
Alliance Town Center (2015) Area 1	Fort Worth	Mixed Use	2,284	3,110
Alliance Town Center (2015) Area 2	Fort Worth	Mixed Use	0	1,885
Alliance Town Center (2015) Area 3	Fort Worth	Mixed Use	2,353	508
Hunters Ranch Phase 2-6 (2030)	City of Denton	MPC	1,343	0
Cole Ranch (2030)	City of Denton	MPC	13,806	8,461

Development	Jurisdiction	Type	Population	Employees
Hunters Ranch Phase 2-6 (2030)	City of Denton	MPC	21,607	3,518
Cole Ranch (2030)	City of Denton	MPC		717
Hunters Ranch Phase 2-6 (2030)	City of Denton	MPC	7,604	2,116
Hunters Ranch Phase 2-6 (2030)	City of Denton	MPC	263	0
Robson Ranch (2030)	City of Denton	Residential	11,401	0
Hunters Ranch Phase 2-6 (2030)	City of Denton	MPC	3,254	2,209
Tradition Phase 6-7 (2030)	Fort Worth	MPC	9,412	56
Belmont (2030)	Argyle, NL	MPC	7,161	1,122
Tradition Phase 4-5 (2030)	Fort Worth	MPC	7,312	986
Circle T Ranch Medical Office (2030)	Westlake	Office	0	767
Circle T Ranch Entertainment (2030)	Westlake	Mixed Use	0	6,246
Circle T Ranch Office (2030)	Westlake	Mixed Use	0	4,193
Circle T Ranch Office (2030)	Westlake	Office	0	7,268
Circle T Ranch Fidelity + Office (2030)	Westlake	Office	0	6,231
Alliance Town Center (2030)	Fort Worth	Mixed Use	2,344	0
Total			156,878	91,858
Total 2015			71,372	47,968
Total 2015-2030			85,506	43,890

Attachment E: Standardized Future Land Use Table

City	City's FLU Designation	STANDARDIZED TMS FLU
Argyle	Rural	Agricultural
	Semi-Rural	Rural
	Low-Density	Rural
	Med-Density	Urban
	Office/Retail	Local Commercial
	Local Retail	Local Commercial
	Community Retail	Local Commercial
	Village Center	Mixed-Use
	Old Town	Mixed-Use
	Business Park	Office
	Public/Semi-Public/Parks	Public
	Environmentally Sensitive Areas	Environmental Areas
	Special Planning Area 1	Mixed-Use
	Special Planning Area 2	Mixed-Use
	Special Planning Area 3	Mixed-Use
	Highway-Right-of-Way	
Bartonville	RE-5	Agricultural
	RE-2	Rural
	Semi-Rural	Rural
	Manufactured Homes	Urban
	Retail	Local Commercial
	Village Center	Mixed-Use
	Public/Semi-Public	Public
Denton		
	RD-5	Agricultural
	RC	Local Commercial
	NR-1	Rural
	NR-1 (N)	Environmental Area
	NR-2	Rural
	NR-3	Suburban
	NR-4	Urban
	NR-6	Urban
	NR-10	Multifamily
	NR-15	Multifamily
	NR-20	Multifamily
	NRMU-12	Mixed-Use
	NRMU	Mixed-Use
Flower	Prairie Vista District	Rural

Mound		
	Cross Timbers District	Rural
	DCD Regional Campus Commercial	Regional Commercial
	DCD Campus Industrial	Industrial
	DCD Commercial/Industrial	Mixed-Use
	DCD Office	Office
	DCD Mixed Residential	Urban
	Specific Area # 8	Regional Commercial
	Rural Density	Rural
	Estate Density	Rural
	Low Density	Suburban
	Medium Density	Urban
	High Density	Urban
	Retail	Local Commercial
	Office	Office
	Commercial/Industrial	Mixed-Use
	Institutional	Public
	Utility	Public
	Park	Public
	Floodplain	Environmental Areas
	Corps of Engineers	Environmental Areas
	Grapevine Lake	Environmental Areas
	Lakeside Business District	Mixed-Use
Fort Worth	Vacant, Undeveloped, Agricultural	Agricultural
	Rural Residential	Rural
	Suburban Residential	Suburban
	Single Family Residential	Urban
	Manufactured Housing	Urban
	Low Density Residential	Urban
	Medium Density Residential	Multifamily
	High Density Residential	Multifamily
	Institutional	Public
	Neighborhood Commercial	Local Commercial
	General Commercial	Regional Commercial
	Light Industrial	Industrial
	Heavy Industrial	Industrial
	Mixed-Use Growth Center	Mixed-Use
	Industrial Growth Center	Industrial
	Infrastructure	Public
	100 Year Flood Plain	Environmental Areas
	Public Park, Recreation, Open Space	Environmental Areas
	Private Park, Recreation, Open Space	Environmental Areas
Haslet	Rural	Rural
	Suburban	Suburban

	Single Family	Urban
	Multi Family	Multifamily
	Neighborhood Commercial	Local Commercial
	General Commercial	Regional Commercial
	Mixed-Use	Mixed-Use
	Light Industrial	Industrial
	Heavy Industrial	Industrial
	Industrial Growth Center	Industrial
	Community Services	Public
Justin	Large Lot Single Family	Rural
	Single Family-1	Suburban
	Single Family-1A	Urban
	Single Family-2	Urban
	Single Family-Old Town	Urban
	Two-Family	Urban
	Multi-Family	Multifamily
	Manufactured Housing	Urban
	Local Retail	Local Commercial
	General Business	Regional Commercial
	Light Industrial	Industrial
	Planned Development	Mixed-Use
Keller	Single-Family Low Density	Suburban
	Single-Family Medium Density	Suburban
	Single-Family High Density	Urban
	Mixed-Use	Mixed-Use
	Office	Office
	Retail	Regional Commercial
	Industrial/Commercial	Regional Commercial
	Public and Semi-public	Public
	Parks and Open Space	Environmental Areas
Northlake	Low Density Residential	Rural
	High Density Residential	Rural
	Multi-Family Residential	Multifamily
	Mixed-Use Development	Mixed-Use
	Commercial/Office/Service	Regional Commercial/Mixed-Use
	Industrial	Industrial
	Park/Open Space	Environmental Areas
Roanoke	Single Family	Urban
	Multi Family	Multifamily
	Institutional	Public
	Neighborhood Commercial	Local Commercial
	Office/Retail	Office
	Business Park	Office
	General Commercial	Regional Commercial

	Business Park	Office
	Industrial	Industrial
	Industrial Park	Industrial
	ROW	Public
	Special Planning District	Mixed-Use
	Floodplain	Environmental Area
	Park	Environmental Area
Trophy Club	Commercial Recreation	Environmental Area
	General Commercial	Local Commercial
	Government Use	Public
	R-9	Urban
	R-10	Urban
	R-11	Urban
	R-12	Urban
	R-15	Suburban
	R-PV	Urban
	R-OH	Urban
	R-OHP	Urban
	R-S	Urban
	R-TT	Urban
	MH	Urban
	NS	Local Commercial
	PO	Office
	PD-7	Multifamily
	PD-10	Urban
	PD-11	Urban
	PD-12	Urban
	PD-13	Local Commercial
	PD-14	Urban
	PD-15	Urban
	PD-16	Urban
	PD-17	Urban
	PD-18	Urban
	PD-19	Urban
	PD-20	Urban
	PD-21	Local Commercial
	PD-22	Urban
	PD-23	Office
	PD-24	Local Commercial
	PD-25	Local Commercial
	PD-26	Local Commercial
	PD-27	Urban
	PD-28	Public
Westlake	R-5	Agricultural
	R-2	Rural
	R-2 Planned Development	Rural

	R-1 Estate	Rural
	R-1 Estate PD	Rural
	Multi-Family	Multi-family
	Multi-Family PD	Multi-family
	Local Retail PD	Local Commercial
	Office Park	Office
	Office Park PD	Office
	Office Park - Hotel PD	Office
	Resort Retail	Regional Commercial
	Office - Industrial Park PD	Industrial
	Office Campus PD	Office
	Public Facilities PD	Public
	Open Spaces PD	Environmental Areas
	Mixed Use PD	Mixed-Use
	Government Use	Industrial
Canyon Falls	Parcel 1	Mixed-Use
	Parcel 2	Mixed-Use
	Parcel 3	Multifamily
	Parcel 4	Urban
	Parcel 5	Urban
	Parcel 6	Urban
	Parcel 7	Urban
	Parcel 8	Urban
	Parcel 9	Urban
	Parcel 10	Mixed-Use
	Parcel 11	Urban
	Parcel 12	Urban
	Parcel 13	Urban
	Parcel 14	Urban
	Parcel 15	Suburban
	Parcel 16	Urban
	Parcel 17	Suburban
	Parcel 18	Urban
	Parcel 19	Urban
	Parcel 20	Urban
	Parcel 21	Urban
	Parcel 22	Mixed-Use
	Parcel 23	Mixed-Use
	Parcel 24	Urban
	Parcel 25	Mixed-Use
	Parcel 26	Mixed-Use
	Parcel 27	Mixed-Use
	Parcel 28	Mixed-Use
	Parcel 29	Mixed-Use
	Parcel 30	Public
	Parcel 31	Urban
	Parcel 32	Urban

	Parcel 33	Urban
	Parcel 34	Urban
	Parcel 35	Urban
	Parcel 36	Urban
	Parcel 37	Urban
	Parcel 38	Urban
	Parcel 39	Urban
	Parcel 40	Urban
	Parcel 41	Public
	Parcel 42	Urban
	Parcel 43	Urban
	Parcel 44	Mixed-Use
	Parcel 45	Mixed-Use
	Parcel 46	Mixed-Use
	Parcel 47	Office
	Parcel 48	Mixed-Use
	Parcel 49	Mixed-Use
	Parcel 50	Mixed-Use
	Parcel 51	Mixed-Use
	Parcel 52	Urban
	Parcel 53	Urban
	Parcel 54	Urban
	Parcel 55	Mixed-Use
Tradition	Phase 1 Mixed Use 40 acres	Mixed-Use
	Phase 1 General Comm. 51.6 acres	Regional Commercial
	Phase 3 Mixed Use 30.5 acres	Mixed-Use
	Phase 3 Multifamily 25.2 acres	Multifamily
	Phase 5 Retail 7.3 acres	Local Commercial
	Phase 5 Office 10 acres	Office
	Phase 6 Commercial 3.5 acres	Local Commercial
	All other residential	Urban
Hunter Ranch	NR-1	Rural
	NR-1 (N)	Rural
	NR-2	Suburban
	NR-3	Urban
	NR-4	Urban
	NR-6	Urban
	NR-10	Multifamily
	NR-15	Multifamily
	NR-20	Multifamily
	MUNC	Mixed-Use
	MUCC	Mixed-Use
	MURC-C	Mixed-Use
	MURC-E	Mixed-Use

Attachment F: Total Capacity Factors

Residential	TMS FLU	Actual Density Range	D.U./Acre Coefficient	COG HH Coefficient	Vacancy Rate	
	Agricultural	5 + acres	0.2	2.77	0.02	
	Rural	1-2 acres	0.75	2.77	0.02	
	Suburban SF	15K - 21K lots	2.5	2.77	0.02	
	Urban SF	5K - 12K lots	5	2.77	0.02	
	Multifamily	18-24 du per acre	20	2.44	0.06	
Employment	TMS FLU	Sq Ft per Employee	Floor-to-Area Ratio	Efficiency Ratio	Vacancy Rate	Land Use Breakout
	Industrial	910	0.29	0.95	0.05	
	Local Commercial	381	0.19	0.85	0.05	
	Regional Commercial	381	0.26	0.75	0.05	
	Office	322	0.39	0.85	0.05	
	Mixed-Use	363	0.30	0.80	0.05	60% Reg Com, 20% Office, 20% MF
	Hotel	2074	0.60			
Public Facilities		ROW Coefficient				
		0.75				
Environmental Areas	TMS FLU	Floodplain Coefficient				
	CFW Floodplain	1.0				
	Other community floodplains	1.0				
Gas Well Sites	2015 Projection	2030 Projection				
	5 total acres per site	0 total acres per site				
Public Employment	City Department	Employee per 1,000 Pop.				
applied after constraints are applied	Police Officers	2.3				
	Police Staff	0.65				
	Fire	4 per Station - 1 station serves a 1.5 mile radius				
	Parks and Community Svc	0.48				

Attachment G: Suitability Criteria Selection

Alliance Airport

Buffer Distance	1 mile		2 mile		3 mile		more than 3 miles	
Type of Development	Residential	Non-Residential	Residential	Non-Residential	Residential	Non-Residential	Residential	Non-Residential
	0.10%	3.43%	12.22%	47.23%	30.83%	27.73%	56.84%	21.56%

IH-35 Corridor

Buffer Distance	1/2 mile		1 mile		more than 1 mile	
Type of Development	Residential	Non-Residential	Residential	Non-Residential	Residential	Non-Residential
	3.39%	4.57%	11.77%	1.49%	84.84%	93.94%

Other Highways

Buffer Distance	1/4 mile		1/2 mile		1 mile		more than 1 mile	
Type of Development	Residential	Non-Residential	Residential	Non-Residential	Residential	Non-Residential	Residential	Non-Residential
	6.82%	30.70%	12.58%	22.87%	26.54%	9.66%	54.06%	36.76%

Proposed MTP

Buffer Distance	1/4 mile		1/2 mile		3/4 mile		1 mile		more than 1 mile	
Type of Development	Residential	Non-Residential	Residential	Non-Residential	Residential	Non-Residential	Residential	Non-Residential	Residential	Non-Residential
	45.49%	70.61%	28.34%	18.87%	17.33%	7.43%	6.76%	2.74%	2.07%	0.00%

Railroads

Buffer Distance	1/2 mile		more than 1/2 mile	
Type of Development	Residential	Non-Residential	Residential	Non-Residential
	16.97%	38.99%	83.03%	61.01%

Attachment H: Suitability Rankings

Residential Land Suitability

Criteria	Weight	1	2	3	4	5
Alliance Airport	1.25	1 mile	2 mile	3 mile		> 3 miles
IH-35 Corridor	1.3	1/2 mile		1 mile		> 1 mile
Other Major Highways	1.2	1/4 mile	1/2 mile	1 mile		> 1 mile
Proposed Master Thoroughfare Plan	1.35	> 1 mile	1 mile	3/4 mile	1/2 mile	1/4 mile
Recently Developed Areas	1.5	> 1 mile	1 mile	3/4 mile	1/2 mile	1/4 mile
High Growth Cities	1	0-499	500-1499	1500-2999	3000-5999	> 6000

Non-Residential Land Suitability

Criteria	Weight	1	2	3	4	5
Alliance Airport	1	> 3 miles	3 miles	2 miles		1 miles
Intermodal Transportation Center	1	> 1/2 mile				1/2 mile
IH-35 Corridor	1.25	> 1 mile		1 mile		1/2 mile
Other Major Highways	1.35	> 1 mile	1 mile	1/2 mile		1/4 mile
Proposed Master Thoroughfare Plan	1.5	> 1 mile	1 mile	3/4 mile	1/2 mile	1/4 mile
Recently Developed Areas	1.5	> 1 mile	1 mile	3/4 mile	1/2 mile	1/4 mile
High Growth Cities	1	0-499	500-1499	1500-2999	3000-5999	> 6000