PRELIMINARY ANALYSIS OF ALTERNATIVES

(See the notes on Pages 3 & 4 for explanations of the terms and basis for effects used in the table.)
(See pages 5 through __ for detailed descriptions of each alternative)

Key to Ratings:

Major Negative Effect	Some Negative Effect	No Effect, Neutral	Some Positive Effect	Major Positive Effect
--	-	o	+	++

		COST EFFECTIVENESS IN SOLVING THE TRANSPORTATION PROBLEMS			MOBILITY EFFECTS			SOCIAL AND ECONOMIC EFFECTS		ENVIRONMENTAL EFFECTS		OTHER EFFECTS		
Alt. No.	**Name of Alternative**	**Estimated Cost of Alternative (1)**	**2020 Annual Total Traffic Delay Savings (2)**	**Transportation Benefit vs. Project Cost (3)**	**How Much Travel Capacity is Added? (4)**	**How Much of the Problem does this Solve? (5)**	**Effects on Traffic on City Streets (6)**	**Effect on Social & Economic Conditions (7)**	**Displacement of Homes and Businesses (8)**	**Effect on Air Quality (9)**	**Effect on Natural & Cultural Assets (10)**	**Impacts on Other Corridor Projects (11)**	**Difficulty/ Disruption in Construction (12)**	**Comments & Recommendations**
1-A	No Build Alternative	$0	$0	Not Applicable	-	-	-- (6a)	-- (7a)	o (8a)	-- (9a)	o (10a)	- (11a)	o (12a)	
1-B	No Build with Regional Congestion Management (CMS)	$0 See Note (13)	$__M Region-wide	Not Applicable	(Baseline)	(Baseline)	+ (6b)	o (7b)	o (8a)	+ (9b)	o (10a)	o (11b)	o (12a)	Results of other alternatives are tested against baseline.
↑↑ Alternative 1-B, "No-Build with Regional Congestion Management" is considered to be the baseline condition for this analysis. All alternatives in the table below are tested one-by-one assuming the 1-B improvements are in place.↑↑														
1-C	No Build with Regional CMS + Add'l Work Trip Reduction	$_M O&M $_M Cap.	$M											
1-D	No Build with Regional CMS + Add'l Bicycle/Pedestrian Imprv's	$_M	$M											
1-E	No Build with Regional CMS + Improved Facility Management	$_M O&M $_M Cap.	$M (14)											
2-A	Connect to Trinity Rail Express with Shuttle Bus	Included in Baseline (1-B)	--	--										
2-B	Connect to Trinity Rail Express w/ Commuter Rail on Exist. Track	$_M	$M											
2-C	Connect to Trinity Rail Express w/ Commuter Rail on New Align.	$_M	$M											
2-D	Connect to Trinity Rail Express w/ Light Rail on New Alignment	$_M	$M											
3-A	Corridor Arterial Signalization and Intersection Improvements Only	$_/_/_M TIP/Base/CIS	$_M for all arterial	__ Based on $_M										
3-B	Collins St. (FM 157)	$M	alternatives combined	for this plan. Assumes $_M										
3-C	New York Ave.	$M	(3-A through 3-D)	in TIP and $_M in other improv										
3-D	Great Southwest Pkwy.	$M		built prior to Year 2025 (Baseline).										

		COST EFFECTIVENESS IN SOLVING THE TRANSPORTATION PROBLEMS			MOBILITY EFFECTS			SOCIAL AND ECONOMIC EFFECTS		ENVIRONMENTAL EFFECTS		OTHER EFFECTS		
Alt. No.	**Name of Alternative**	**Estimated Cost of Alternative (1)**	**2020 Annual Total Traffic Delay Savings (2)**	**Transportation Benefit vs. Project Cost (3)**	**How Much Travel Capacity is Added? (4)**	**How Much of the Problem does this Solve? (5)**	**Effects on Traffic on City Streets (6)**	**Effect on Social & Economic Conditions (7)**	**Displacement of Homes and Businesses (8)**	**Effect on Air Quality (9)**	**Effect on Natural & Cultural Assets (10)**	**Impacts on Other Corridor Projects (11)**	**Difficulty/ Disruption in Construction (12)**	**Comments & Recommendations**
4-A	SH 360 – Group A Existing Facility with Bottleneck Improvements Only	$_M												
4-B	SH 360 – Group B Limited SH 360 Improvements: Existing Facility with 2 Added Lanes (Evaluated as Sect 4.B.1, pg. _)	$_M See Note (16)												
4-C	SH 360 – Group C Mid-Range SH360 Improvements Existing Facility with 4 Added Lanes (Evaluated as Sect 4.C.1, pg. _)	$_M See Note (16)												
4-D	SH 360 – Group D Extensive SH 360 Improvements: Existing Facility with 6 Added Lanes (Evaluated as Sect 4.D.1, pg. _)	$_M See Note (16)												
5-A	SH 161 – Add 2 Directional HOV	$_M See Note (16)												
5-B	SH 161 – Add 2 Reversible HOV	$_M See Note (16)												

General Notes:

The table shows the performance of a number of alternatives developed in the period January 2001 through June 2001 for the SH 360 Corridor Improvement Study (CIS). Alternative 1-B, the "No-Build with Regional Congestion Management Alternative" is considered to be the baseline condition for this analysis. All other alternatives are tested one-by-one against this baseline condition. The following are notes explaining several of the entries in the table:

1. Costs are exploratory-level and are shown in 2001 dollars. Costs include design and permitting, surveys, right-of-way acquisition and mitigation, construction, inspection, testing, and contingencies. Costs do not include annual operations and maintenance expenses for capital projects. For the CMS projects (Items 1-C and 1-E) which are funded on an annual basis, the figures shown are initial installation costs and annual operation and maintenance costs.
2. Total traffic delay savings are calculated at a rate of $8.92 per person hour of traffic delay. This approximates the value of lost time for people delayed in traffic jams. The $8.92 per person hour rate is the rate used by the NCTCOG for regional planning purposes. The daily hours of total traffic delay are calculated by the traffic model for each alternative. The annual cost is extended from this daily delay by multiplying by the number of weekdays in a year (260).
3. The column "Transportation Benefit versus Project Cost" compares the annual benefit of each alternative (in moving people) to the annual cost of the alternative. The transportation benefits are the 2025 annual congestion delay savings shown in the 4th column of the table. The annual project costs of capital projects are calculated by adding the equivalent annual loan payment for the capital outlay, plus the estimated annual operation and maintenance costs. The equivalent annual loan payment is calculated based on a 30-year note with an interest rate of seven percent (7%) per annum.
4. The column titled "How Much Travel Capacity is Added" quantifies the number of person-trips added by this alternative. This number is divided by the corridor's north-south movement goal of __,000 person trips to calculate the percentage in the column "How much of the Problem does this Solve?" See example in Footnote 5.
5. The values shown in this column are based on a nominal goal of improving the east-west movement through the SH 360 corridor so that the corridor will have congested (stop and go) conditions during no more than four hours on an average weekday in the Year 2025. The meaning of "How much of the Problem Does this Solve?" is best explained by an example: *Say that the SH 360 corridor has an existing usable (two-way) capacity of 10,000 person trips per hour, and the traffic modeling showed that the capacity had to be improved to 20,000 person trips per hour to serve the projected demand in Year 2020 with no more than four hours of congested conditions on an average weekday. Say that a proposed alternative provided an additional capacity of 5,000 person trips per hour for people using the SH 183 corridor. This alternative would receive a score of 50%, because it only provides half of the additional capacity required to meet the four-hours of congestion goal. Solution to our problem requires the addition of 10,000 person trips per hour of capacity to the corridor, and this particular alternative provides only 50% of that solution.*
6. The column titled "Effects on Traffic on City Streets" is intended to identify whether traffic congestion will occur on city streets as a result of each alternative. Based on the traffic modeling, alternatives which resulted in less traffic control delay at intersections or less cut-through traffic on residential streets received the higher ratings, and alternatives which increased traffic control delay or increased traffic on residential streets received the lower ratings.
7. The column titled "Effect on Social and Economic Conditions" is intended to identify impacts on neighborhoods and businesses. These types of impacts include specific visual impacts, cumulative effects on neighborhood quality and safety, increased noise levels, land use impacts, environmental justice concerns, loss of access to services, and loss of jobs due to displacements or other effects. It is difficult to assess the impacts of some of the alternatives at this time due to the incomplete development of route details. Alternatives which provide improved access to commercial areas without the potential for disruption of neighborhoods received the higher ratings. Alternatives which have a potential for negative community impacts received the lower ratings.
8. The column titled "Displacement of Homes and Businesses" is intended to identify any displacements expected as a result of the implementation of each alternative. It is difficult to assess the impacts of some of the alternatives at this time due to the incomplete development of route details. The highest rating in this category is "No effect/Neutral", meaning that no homes or businesses are affected.
9. The Environmental Protection Agency has determined that the air in the Dallas/Fort Worth area is unhealthy, because the area violates the National Ambient Air Quality Standards for ozone. Automobiles are a major contributor to ozone levels, as well as to several other types of pollutants. Transportation strategies for reducing air pollution focus on vehicle emission controls, removal of bottlenecks and congestion delays, improvement of intersections and signal progression, reduction in the number of vehicles on the road through car-pool and van-pool programs, and promotion of less-polluting forms of transportation, such as rail transit. For the "Effect on Air Quality" column, alternatives which significantly reduced congestion or carried more traffic in HOV or rail transit facilities were characterized as having "some positive effect". Alternatives which would lead to increased congestion received the lowest ratings.
10. The column titled "Effect on Natural and Cultural Assets" is intended to identify possible impacts in a broad range of environmental concerns. The *Natural Assets* include ecosystems, park lands, open space, endangered species, water bodies, and other wildlife/natural habitat. The *Cultural Assets* include archaeological and historical sites, and cemeteries. An alternative would have to benefit a natural and cultural asset in order to receive a high rating in this category. Most alternatives received a "No effect/Neutral" rating. Alternatives which were believed to directly impact a natural or cultural asset were given lower ratings. In the course of final design of alternatives, procedures to avoid, minimize or mitigate negative effects may resolve any impacts on natural and cultural assets.
11. The column titled "Impacts on Other Corridor Projects" is intended to identify concerns regarding other projects proposed in the SH 360 Corridor. These projects include flood-protection improvements, parks and recreational development, and initiatives to improve linkages to areas within the corridor. It is difficult to assess the impacts of some of the alternatives at this time due to the incomplete development of route details.
12. The column titled "Difficulty/Disruption During Construction" is intended to identify concerns about the impact of construction of each alternative on neighboring businesses and residential areas. Construction impacts can be reduced with a well managed sequence of work. Nevertheless, those alternatives which require significant work in existing highway rights of way received the lower ratings. The highest rating in this category was "No Effect/Neutral".
13. The programmed cost of the Regional Congestion Management System within the SH 360 corridor is $__ to __ million capital outlay and $__ to __ million per year operating cost at full implementation. The total cost over the entire D/FW region is $__ billion through Year 2025. This funding has already been committed at the regional level, and will be spent regardless of the outcome of this study. For the purposes of this analysis, the regional CMS is a baseline condition. Costs are shown for comparative purposes only.
14. The traffic model used for the SH 360Corridor assumes that all available transportation facilities in the corridor are in full use, without blockages caused by accidents and incidents. Intelligent Transportation Systems (ITS) and Incident Detection and Response (IDRS) target non-recurring congestion, outside of the assumptions of the traffic model. These strategies have a significant beneficial effect, but the effect is not quantifiable from the traffic modeling data developed to date. Recent studies show congestion from accidents and incidents is equal to half of all congestion in urban areas. The Texas Transportation Institute suggests that up to one-third of non-recurring congestion can be reduced through aggressive freeway ITS and IDRS programs. Benefits are based on this reduction in delay. Costs are based on the regional CMS program and corridor specific ITS and IDRS programs. The costs shown are for additional ITS improvements within the study corridor. Delay savings and benefit to cost ratio are based on all ITS and IDRS programs. Total capital costs for these a programs are $__ to __ Million and annual operating costs of $__ to $__ Million.
15. Percentages shown for Alternatives 5-A and 5-B are based on an assumed two-lane generic HOV facility. The percentages shown in the "How much of the problem does it solve?" column could be increased or decreased by adding or deleting lanes from the assumed facility or changing the operational characteristics (to HOV, express lanes, etc.)
16. Costs exclude improvements to major interchanges such as the I-30 and Division interchanges. The level of detail at this stage does not permit estimation of those cost at this time.

NOTES FOR EVALUATION RATINGS (SAMPLE ONLY):

The following notes explain the positive or negative effect ratings used in the table:

MOBILITY EFFECTS:

Effects on Traffic on City Streets

(6a) Traffic increases without capacity improvements cause greater traffic on city streets and arterials.

(6b) Congestion Management Strategies reduce total traffic, thereby reducing the amount of traffic using city streets instead of congested freeways.

(6c) Transit reduces total automobile traffic, thereby reducing the amount of traffic using city streets instead of congested freeways.

(6d) Improved arterial roads reduce the amount of bypass or cut-through traffic using city side streets.

(6e) Bottleneck and frontage road improvements will reduce congestion on isolated segments of SH 360, but should have little or no effect on traffic using city streets.

(6f) Improved through-traffic capacity on SH 360 or a new reliever roadway should reduce the amount of bypass or cut-through traffic using the city side streets.

SOCIAL & ECONOMIC EFFECTS:

Effects on Social & Economic Conditions

(7a) Traffic increases without capacity improvements result in greater congestion, with a cumulative effect on noise, delay and disincentive for business development.

(7b) Congestion Management Strategies reduce total traffic, thereby reducing congestion. This can increase social and economic vitality.

(7c) Enhanced Congestion Management Strategies and rail transit reduce total automobile traffic and resulting congestion. Reduced congestion increases social and economic vitality.

(7d) Portions of ___ Road adjoin residential neighborhoods. Increased arterial traffic may negatively impact neighborhood quality.

(7e) Benefits from reduced congestion may be offset by negative impacts on neighborhood quality resulting from increased traffic.

(7f) Arterials on new location within commercial and industrial land uses can increase access and reduce traffic congestion on existing streets.

(7g) Bottleneck and frontage road improvements can reduce traffic congestion, which can increase economic vitality of adjacent businesses.

(7h) Potential negative impacts on aesthetics and noise if constructed as a separated elevated structure, exacerbating the "barrier" feel of SH 360 on the community.

(7i) Minimal right-of-way impacts and disruption during construction may be off-set by improved mobility and reduced congestion in the SH 360 corridor.

(7j) More substantial right-of-way impacts and disruption during construction may be off-set to some extent by improved mobility and reduced congestion in the SH 360 corridor.

Displacement of Homes and Businesses

(8a) No displacement of homes or businesses is expected.

(8b) Widening of __ Blvd. may displace parking and thereby negatively impact businesses in the corridor.

(8c) Widening of right-of-way for ramp placement may require loss of parking, and potentially impact some businesses.

ENVIRONMENTAL EFFECTS:

Effect on Air Quality

(9a) Reduced air quality will result from increased traffic and congestion if no compensating increase in travel capacity is provided.

(9b) Enhanced Congestion Management Strategies and rail transit reduce total automobile traffic, thereby reducing polluting automobile emissions.

(9c) Improved arterials had little to no effect in reducing emissions according to the preliminary air quality model.

(9d) Improved roadways reduce congestion, thereby reducing emissions from idling and slow-moving traffic.

(9e) The addition of HOV lanes will encourage ridesharing and thus reduce the total number of vehicle trips.

(9f) Freeways with reduced congestion will reduce CO emissions and slightly reduce VOC emissions. Increased speed will increase NOX emissions. Based on off-setting changes, this alternative was considered neutral in air quality impacts.

Effect on Natural & Cultural Assets

(10a) No impact to natural or cultural assets is expected.

(10b) Widening __ Blvd. will require a small amount of right-of-way and tree removal from ___ area.

(10c) Segments of these arterials are on new location and traverse the floodplain of the __ River. Floodplain and wetland areas may be impacted.

OTHER EFFECTS:

Impacts on Other Corridor Projects

(11a) The No-Build Alternative creates lack of connectiveness or synergy with other improvements within this or other adjoining corridors.

(11b) This alternative has no effect on other corridor projects.

(11c) Enhanced bicycle/pedestrian facilities may increase access to schools, employment centers, transit service, and park and recreational trail facilities within the corridor.

(11d) Improved rail transit facilities within this corridor may supplement ridership on any improvements proposed in DART's Northwest Corridor Major Investment Study.

(11e) These arterial improvements supplement the Cities' Thoroughfare Plan improvements.

Difficulty/Disruption in Construction

(12a) No effect is expected on existing traffic due to construction.

(12b) Construction to widen arterials may have a localized negative impact to traffic.

(12c) Improvements to ___ Blvd. are on new right-of-way, away from existing traffic.

(12d) Construction to remove bottlenecks and improve frontage roads may have a localized negative impact to traffic.

(12e) Major capacity improvements within the SH 360 right-of-way will require significant traffic control and rerouting to maintain existing travel capacity during construction.

DETAILED ANALYSIS OF ALTERNATIVES

(See the notes on Pages 5-7 for explanations of the terms and basis for effects used in the table.)

Key to Ratings:

Major Negative Effect	Some Negative Effect	No Effect, Neutral	Some Positive Effect	Major Positive Effect
--	-	o	+	++

		COST EFFECTIVENESS IN SOLVING THE TRANSPORTATION PROBLEMS				MOBILITY EFFECTS		SOCIAL AND ECONOMIC EFFECTS				ENVIRONMENTAL EFFECTS							OTHER EFFECTS
Alt. No.	**Name of Alternative**	**Estimated Cost of Alternative (1)**	**2020 Annual Total Traffic Delay Savings(2)**	**Transport. Benefit vs. Project Cost (3)**	**Revenue Generation Potential (4)**	**How Much of Problem does this Solve? (5)**	**Effects on Traffic on City Streets (6)**	**Effect on Adjacent LandUse (7)**	**Effect on Adjacent Land Access(8)**	**Effect on Aesthetics/ Visual Intrusion(9)**	**No. of Displaced Homes or Business(10**	**Effect on Regional Air Quality (11)**	**Effect From Noise (12)**	**Effect on Floodplain/ Drainage (13)**	**Impacted Woodlands/ Wetlands (Ac)(14)**	**Impacted Arch./ Historic Sites(15)**	**Affected HazMat Sites(Min/ /Major)(16)**	**Affected Parks/ Mitigation Lands (17)**	**Difficulty/ Disrupt. in Construct. (18)**
1-A	No Build Alternative	$0	$0	Not Applicable	**O (4a)**	-	**-- (6a)**	**O(7a)**	**O(8a)**	**O (9a)**	**0 (10a)**	See COG PERF Rept.	**O(12a)**	**O(13a)**	**0 (14a)**	**0 (15a)**	**0/0 (16a)**	**0 (17a)**	**O (18a)**
1-B	No Build with Regional Congestion Management (CMS)	$0 See Note (1a)	$__M Region-wide	Not Applicable	**O (4a)**	(Baseline)	**+ (6b)**	**O(7a)**	**O(8a)**	**O (9a)**	**0 (10a)**	VOC - CO - NOx -	**O(12a)**	**O(13a)**	**0 (14a)**	**0 (15a)**	**0/0 (16a)**	**0 (17a)**	**O (18a)**
↑↑ Alternative 1-B, "No-Build with Regional Congestion Management" is considered to be the baseline condition for this analysis. All alternatives in the table below are tested one-by-one assuming the 1-B improvements are in place.↑↑																			
1-C	No Build with Regional CMS + Add'l Work Trip Reduction																		
1-D	No Build with Regional CMS + Add'l Bicycle/Pedestrian Imprv's																		
1-E	No Build with Regional CMS + Improved Facility Management																		
2	Trinity Railway Express Improvements																		
3	Arterial Improvements																		
4-A	SH 360 – Group A Existing Facility with Bottleneck Improvements Only																		
	SH 360 Group B **Limited SH 360 Improvements -** Generally 8 Limited Access Ln.																		
4.B.1																			
4.B.2																			
4.B.3																			
4.B.4																			

		COST EFFECTIVENESS IN SOLVING THE TRANSPORTATION PROBLEMS				MOBILITY EFFECTS		SOCIAL AND ECONOMIC EFFECTS				ENVIRONMENTAL EFFECTS							OTHER EFFECTS
Alt. No.	**Name of Alternative**	**Estimated Cost of Alternative (1)**	**2020 Annual Total Traffic Delay Savings(2)**	**Transport. Benefit vs. Project Cost (3)**	**Revenue Generation Potential (4)**	**How Much of Problem does this Solve? (5)**	**Effects on Traffic on City Streets (6)**	**Effect on Adjacent LandUse (7)**	**Effect on Adjacent Land Access(8)**	**Effect on Aesthetics/ Visual Intrusion(9)**	**No. of Displaced Homes or Business(10**	**Effect on Regional Air Quality (11)**	**Effect From Noise (12)**	**Effect on Floodplain/ Drainage (13)**	**Impacted Woodlands/ Wetlands (Ac)(14)**	**Impacted Arch./ Historic Sites(15)**	**Affected HazMat Sites(Min/ /Major)(16)**	**Affected Parks/ Mitigation Lands (17)**	**Difficulty/ Disrupt. in Construct. (18)**
	SH 360 Group C - Mid-Range SH 360 Improvements - - Generally 10 Limited Access Ln.																		
4.C.1																			
4.C.2																			
4.C.3																			
4.C.4																			
4.C.5																			
	SH 360 Group D - Extensive SH 360 Improvements - - Generally 12 Limited Access Ln. -																		
4.D.1																			
4.D.2																			
4.D.3																			
4.D.4																			
4.D.5																			
	SH 161 – HOV Lane Additions - Requires SH 360 Improvements -																		
5.A.1																			
5.A.2																			

General Notes: The table shows the performance of a number of alternatives developed in the period July 2001 through October 2001 for the SH 360 Corridor Improvement Study (CIS). Alternative 1-B, the "No-Build with Regional Congestion Management Alternative" is considered to be the baseline condition for this analysis. All other alternatives are tested one-by-one against this baseline condition. The following are notes explaining several of the entries in the table:

1. Costs are exploratory-level and are shown in 2001 dollars. Costs include design and permitting, surveys, right-of-way acquisition and mitigation, construction, inspection, testing, and contingencies. Costs do not include annual operations and maintenance expenses for capital projects. For the CMS projects (Items 1-C and 1-E), which are funded on an annual basis, the figures shown are initial installation costs and annual operation and maintenance costs.
2. Total traffic delay savings are calculated at a rate of $8.92 per person hour of traffic delay. This approximates the value of lost time for people delayed in traffic jams. The $8.92 per person hour rate is the rate used by the NCTCOG for regional planning purposes. The daily hours of total traffic delay are calculated by the traffic model for each alternative. The annual cost is extended from this daily delay by multiplying by the number of weekdays in a year (260).
3. The column "Transportation Benefit versus Project Cost" compares the annual benefit of each alternative (in moving people) to the annual cost of the alternative. The transportation benefits are in the column headed "2020 Annual Total Traffic Delay Savings". The annual project costs of capital projects are calculated by adding the equivalent annual loan payment for the capital outlay, plus the estimated annual operation and maintenance costs. The equivalent annual loan payment is calculated based on a 30-year note with an interest rate of seven percent (7%) per annum.
4. Due to the limited tax revenue for funding transportation improvements, the revenue generation potential of alternatives was evaluated. Transit with fare generation, Managed HOV systems, and tollways were given positive effects.
5. The values shown in this column are based on a nominal goal of improving the north-south movement through the SH 360 corridor so that the corridor will have congested (stop and go) conditions during no more than four hours on an average weekday in the Year 2020. The meaning of "How much of the Problem Does this Solve?" is best explained by an example: *Say that the SH 360 corridor has an existing usable (two-way) capacity of 10,000 person trips per hour, and the traffic modeling showed that the capacity had to be improved to 20,000 person trips per hour to serve the projected demand in Year 2020 with no more than four hours of congested conditions on an average weekday. Say that a proposed alternative provided an additional capacity of 5,000 person trips per hour for people using the SH 183 corridor. This alternative would receive a score of 50%, because it only provides half of the additional capacity required to meet the four-hours of congestion goal. Solution to our problem requires the addition of 10,000 person trips per hour of capacity to the corridor, and this particular alternative provides only 50% of that solution.*
6. The column titled "Effects on Traffic on City Streets" is intended to identify whether traffic congestion will occur on city streets as a result of each alternative. Based on the traffic modeling, alternatives which resulted in less traffic control delay at intersections or less cut-through traffic on residential streets received the higher ratings, and alternatives which increased traffic control delay or increased traffic on residential streets received the lower ratings.
7. The column titled "Effect on Adjacent Land Use" is intended to identify impacts on neighborhoods and businesses in close proximity to proposed alignments. These types of impacts include cumulative effects on neighborhood quality and safety, environmental justice concerns, loss of access to services, and loss of jobs due to displacements or other effects. Alternatives which provide improved access to commercial areas without the potential for disruption of neighborhoods received higher ratings. Alternatives which have a potential for negative community impacts received the lower ratings.
8. The column titled "Effect on Adjacent Land Access" is intended to identify access impacts on neighborhoods and businesses in close proximity to proposed improvements. Alternatives which provide improved access to commercial areas without the potential for disruption of neighborhoods received the higher ratings. Alternatives which have a potential for negative community impacts received the lower ratings.
9. The column titled "Effect on Aesthetics/Visual Intrusion" is intended to identify the potential aesthetic impacts on neighborhoods and businesses within view of the proposed alignments. These measurements are intended to give a relative scale to the possible visual intrusion of elevated roadways.
10. The column titled "No. of Displaced Homes or Businesses" quantifies any displacements expected as a result of the implementation of each alternative. It is difficult to assess the impacts of some of the alternatives at this time due to the incomplete development of route details. The highest rating in this category is "No effect/Neutral", meaning that no homes or businesses are affected.
11. The column titled "Effect on Regional Air Quality" is intended to identify the impact on regional air quality standards. Alternatives which significantly reduced congestion or carried more traffic in HOV or rail transit facilities were characterized as having "some positive effect". Alternatives which would lead to increased congestion received the lowest ratings. The NCTCOG traffic model estimates the efficiency of traffic, and its reduction of automobile emissions.
12. The column titled "Effect from Noise" is intended to identify impacts on neighborhoods from roadway noise. The impact is compared to the Federal and State Noise Abatement Criteria. Noise mitigation may be included if roadway noise approaches or exceeds 67 dBA in residential areas or 72 dBA in commercial property.
13. The column titled "Effect on Flood Plains and Levees" is intended to identify possible impacts to the flood carrying capacity of the floodway, or its potential impacts to the river pump stations and storage sumps. It also includes the impact or benefit to the levees from improved height or strength from roadway embankment.
14. The column titled "Effect on Woodlands/Wetlands" is intended to measure the relative impact on wooded areas and jurisdictional wetland areas from each alternative. The extent of wooded areas was based on aerial topographic mapping. The extent of wetland areas was based on US Fish & Wildlife Service National Wetland Inventory Maps. All areas are approximate and subject to change pending further refinement of the alternative's location. In the course of final design, procedures to avoid, minimize or mitigate negative effects may resolve any impacts on these natural assets.
15. The column titled "Impacted Historical/Archeological Sites" is intended to identify possible impacts to archaeological and historical sites, and cemeteries. Some alternatives received a "No effect/Neutral" rating. Alternatives which were believed to directly impact a cultural asset were given lower ratings. In the course of final design of alternatives, procedures to avoid, minimize or mitigate negative effects may resolve any impacts on these assets.
16. The column titled "Effected HazMat Site" is intended to identify the potential for environmental clean-up on property on or near the alternative. This potential impact is based on publicly documented properties with known environmental impacts, such as landfills, leaking underground storage tank sites, and other sites identified by the Environmental Protection Agency or the Texas Natural Resource Conservation Commission. Landfills were considered major while leaking underground storage tank sites were considered minor.
17. The column titled "Effected Parks/Mitigation Lands" is intended to identify possible impacts of environmental concerns. These include park lands, open space, endangered species habitat, jurisdictional water bodies, and other wildlife/natural habitat. An alternative would have to benefit a natural and cultural asset in order to receive a high rating in this category. Most alternatives received a "No effect/Neutral" rating. Alternatives which were believed to directly impact a natural or cultural asset were given lower ratings. In the course of final design of alternatives, procedures to avoid, minimize or mitigate negative effects may resolve any impacts on natural and cultural assets.
18. The column titled "Difficulty/Disruption During Construction" is intended to identify concerns about the impact of construction of each alternative on neighboring businesses and residential areas. Construction impacts can be reduced with a well managed sequence of work. Nevertheless, those alternatives which require significant work in existing highway rights of way received the lower ratings. The highest rating in this category was "No Effect/Neutral".

1.a The programmed cost of the Regional Congestion Management System within the SH 360 corridor is $__ to __ million capital outlay and $__ to __ million per year operating cost at full implementation. The total cost over the entire D/FW region is $__ billion through Year 2025. This funding has already been committed at the regional level, and will be spent regardless of the outcome of this study. For the purposes of this analysis, the regional CMS is a baseline condition. Costs are shown for comparative purposes only.

2.a The traffic model used for the SH 360 Corridor assumes that all available transportation facilities in the corridor are in full use, without blockages caused by accidents and incidents. Intelligent Transportation Systems (ITS) and Incident Detection and Response (IDRS) target non-recurring congestion, outside of the assumptions of the traffic model. These strategies have a significant beneficial effect, but the effect is not quantifiable from the traffic modeling data developed to date. Recent studies show congestion from accidents and incidents is equal to half of all congestion in urban areas. The Texas Transportation Institute suggests that up to one-third of non-recurring congestion can be reduced through aggressive freeway ITS and IDRS programs. Benefits are based on this reduction in delay. Costs are based on the regional CMS program and corridor specific ITS and IDRS programs. The costs shown are for additional ITS improvements within the study corridor. Delay savings and benefit to cost ratio are based on all ITS and IDRS programs. Total capital costs for these a programs are $__ to __ Million and annual operating costs of $__ to $__ Million.

NOTES FOR EVALUATION RATINGS (SAMPLE NOTES):

The following notes explain the positive or negative effect ratings used in the table:

COST EFFECTIVENESS:

Revenue Generation Potential

(4a) Alternative does not provide or generate revenue from tolls or fares.

(4b) Managed HOV or HOV/Special Use (SU) lanes will provide an opportunity for possible tolled access by SOV's as capacity warrants.

(4c) Alternative provides or generates revenue from tolls or fares. Alternatives with at least two (2) dedicated Special Use (SU) lanes in each direction will permit tolls to be imposed for revenue collection.

MOBILITY EFFECTS:

Effects on Traffic on City Streets

(6a) Traffic increases without capacity improvements cause greater traffic on city streets and arterials.

(6b) Congestion Management Strategies reduce total traffic, thereby reducing the amount of traffic using city streets instead of congested freeways.

(6c) Transit reduces total automobile traffic, thereby reducing the amount of traffic using city streets.

(6d) Improved arterial roads reduce the amount of bypass or cut-through traffic using city side streets.

(6e) Bottleneck and frontage road improvements will reduce congestion on isolated segments of SH 360, but should have little or no effect on traffic using city streets.

(6f) Improved through-traffic capacity should reduce the amount of bypass or cut-through traffic using the city side streets by providing a more attractive alternative for medium and longer length trips.

SOCIAL & ECONOMIC EFFECTS:

Effects on Adjacent Land Use

(7a) Traffic increases without capacity improvements result in greater congestion, with a cumulative effect on noise, delay and disincentive for business development.

(7b) Congestion Management Strategies reduce total traffic, thereby reducing congestion. This can increase social and economic vitality of adjacent land use.

(7c) Enhanced Congestion Management Strategies and rail transit reduce total automobile traffic and resulting congestion. Reduced congestion increases social and economic vitality to adjacent land use.

(7d) New veloweb facilities, especially adjoining residential neighborhoods, may positively impact neighborhood quality.

(7e) Benefits from reduced congestion may be offset by negative impacts on neighborhood quality resulting from increased traffic.

(7f) Bottleneck and frontage road improvements can reduce traffic congestion, but may have little effect on adjacent businesses and land use.

(7g) Potential negative impacts on aesthetics and noise if constructed as a separated elevated structure, exacerbating the "barrier" feel of SH 360 on the community.

(7h) Minimal right-of-way impacts and disruption during construction may be off-set by improved mobility and reduced congestion in the corridor.

(7i) More substantial right-of-way impacts and disruption during construction may be off-set to some extent by improved mobility and reduced congestion in the corridor.

(7j) The depressed nature of the alternative through a partially commercial/retail area will have a negative impact to the adjacent land uses because of reduced visibility.

(7k) Potential negative impacts to nearby residential areas due to noise and/or lower property values.

Effects on Adjacent Land Access

(8a) This alternative should cause little or no change in land access.

(8b) Improved operations resulting from ramp and intersection improvements will offset any negative impacts to direct access to a few specific properties due to consolidation of ramps.

(8c) Roadways on new location within commercial and industrial land uses can increase access and reduce traffic congestion on existing streets.

Effects on Aesthetics/Visual Intrusion

(9a) This alternative has little or no affect on aesthetics.

(9b) Elevated structures will have a major negative effect on aesthetics and visual intrusion.

(9c) Alternatives that generally maintain the existing grade of the facility will have no measurable effect on aesthetics and visual intrusion. Elevated structures at major interchanges may be required to accommodate some alternatives.

(9d) Depressed general purpose and HOV lanes will have some positive effect on aesthetics and visual intrusion.

Displacement of Homes and Businesses

(10a) No displacement of homes or businesses is expected.

(10b) The number of displaced homes and businesses is based on the current diagrammatic designs that are centered on the existing centerline. These diagrammatic designs have been developed to compare alternatives and there has been little attempt to modify the designs by shifting the proposed centerline or modifying ramp locations to minimize right-of-way impacts and displacements.

(10c) The displacements were estimated from a standard 300 foot wide right-of-way for a reliever road. Use of existing right-of-way and minor adjustments in alignments during preliminary engineering may help reduce displacements.

ENVIRONMENTAL EFFECTS:

Effect on Air Quality

(11a) Reduced air quality will result from increased traffic and congestion if no compensating increase in travel capacity is provided.

(11b) Enhanced Congestion Management Strategies and rail transit reduce total automobile traffic, thereby reducing polluting automobile emissions.

(11c) Improved arterials had little to no effect in reducing emissions according to the preliminary air quality model.

(11d) Improved roadways reduce congestion, thereby reducing emissions from idling and slow-moving traffic.

(11e) The addition of HOV lanes will encourage ridesharing and thus reduce the total number of vehicle trips.

(11f) Freeways with reduced congestion will reduce CO emissions and slightly reduce VOC emissions. Increased speed will increase NOX emissions. Based on off-setting changes, this alternative was considered neutral in air quality impacts.

Effect from Noise

(12a) No impact from noise is expected.

(12b) Alternatives with elevated roadways will have a major negative impact due to noise because of the added distance that noise will carry from the elevated structures and the difficulty of shielding adjacent land uses from noise from elevated roadways using standard noise barriers.

(12c) Due to increased traffic on the improved alternatives, all alternatives that basically maintain the existing facility grade will have some negative impact on noise at adjacent properties without mitigation.

(12d) The depressed alternative will shield some of the adjacent land uses from traffic noise that is considered to offset the increased noise due to additional traffic on the facility.

(12e) Alternatives on new location near (within 400' +/-) residential areas were considered to create a potential impact from noise if mitigation is not provided.

Effect on Floodplain/Drainage

(13a) No impact to floodplain or drainage systems is expected.

(13b) Alternatives that maintain the existing grade or use elevated structures will have no measurable impact on floodplains and drainage.

(13c) The depressed alternative will require major reconstruction of over 3 miles of drainage ways replacing open channel drainage with closed box culverts. There are four major drainage crossings of SH 360 in the area being considered to be depressed.

Impacted Woodlands/Wetlands

(14a) Very minimal impacts to woodlands or wetlands are anticipated from this alternative.

(14b) Woodlands and wetland areas potentially impacted were estimated from available mapping and field reconnaissance.

Impacted Archeological/Historical Sites

(15a) No impact to Archeological/Historical Sites is expected.

(15b) The Watkins Cemetery is located on the east side of SH 360, approximately 600 feet north of the intersection withI-30. This alternative will not impact the cemetery.

(15c) The ___ is in the general vicinity.

Affected Hazardous Material Sites (No. of Minor/Major Sites)

(16a) No impact to Hazardous Material Sites is expected.

(16b) Reconstructing the corridor and having some combination of 8 travel lanes at-grade or depressed will potentially impact ____ "minor" hazardous material (hazmat) regulated sites identified from publicly available regulatory review databases. A minor Hazmat site would include Leaking Petroleum Storage Tank facilities and Small Quantity Hazardous Waste Generators such as dry cleaners. Major Hazmat Sites include more major influence sites such as Solid Waste Disposal facilities (Landfills).

(16c) Reconstructing the corridor and having some combination of 9 or 10 travel lanes at-grade or depressed will potentially impact ____ "minor" hazmat sites. Additionally, reconstructing to replace the existing 6 lane freeway and adding two 2-lane HOV/SU elevated roadways will potentially impact nine "minor" hazmat sites.

(16d) Reconstructing the corridor and having some combination of 11 or 12 travel lanes at-grade or depressed will potentially impact ____ "minor" hazmat sites. Additionally, reconstructing to some combination of 8 travel lanes at-grade and adding two 2-lane HOV/SU elevated roadways will potentially impact twelve "minor" hazmat sites.

(16e) Only "minor" hazmat sites were identified within the alternative's proposed right-of-way.

(16f) Major hazmat sites potentially impacted is a small closed landfill near __.

(16g) Major hazmat sites potentially impacted is a small closed landfill near ___.

(16h) Major hazmat sites potentially impacted are the ___.

(16i) Major hazmat sites potentially impacted are the ___.

Affected Parks or Mitigation Lands (No. of Sites)

(17a) No impact to Parks or Mitigation Lands is expected.

(17b) Adding an elevated HOV structure on the east side of SH 360 between the general purpose lanes and the frontage roads to the existing facility will not impact the one park adjacent to the facility.

(17c) All alternatives that involve complete reconstruction will impact ___ Park, located on the west side of SH 360, to varying degrees.

(17d) This alignment crosses the trail and park mitigation areas identified in __.

(17e) Widening of ___ Blvd. may affect the __ Park in ___.

(17f) This alignment crosses a wetland mitigation area near __.

(17g) This alignment crosses the wetland mitigation area created for ___ area reclamation

OTHER EFFECTS:

Difficulty/Disruption in Construction

(18a) No effect on existing traffic due to construction is expected.

(18b) Construction to widen arterials may have a localized negative impact to traffic.

(18c) Construction to remove bottlenecks and improve frontage roads may have a localized negative impact to traffic.

(18d) Using a relative ranking, constructing an elevated HOV structure within the existing facility will create minimal difficulty and disruption during construction.

(18e) Using a relative ranking, reconstructing the corridor at the same grade as it is currently will create some difficulty and disruption during construction.

(18f) Using a relative ranking, constructing over two miles of depressed general purpose and mainlanes in an area that currently is at-grade with overpasses at cross streets will create major difficulty and disruption during construction. It is estimated that the construction time for this portion of the project will take twice as long as the construction time if it was reconstructed at the existing grade.

(18g) Construction for widening an existing, densely developed arterial is more difficult to construct and may adversely disrupt adjacent ingress/egress.

(18h) Construction of a roadway on a new location should have only minimal traffic disruption at existing street crossings.