96-37
~~Target~~

 City of Rockwall (3/87)

APPLICATION AND FINAL PLAT CHECKLIST

Date 5-22-96

Name of Proposed Development STEGER TOWNE CROSSING PHASE I.

Name of Developer STEGER TOWNE CROSSING, L.P.

Address 5025 ARAPAHO ROAD, 407 Phone 214/789-2977
DALLAS, TEXAS 75248

Owner of Record 740/3097, LIMITED PARTNERSHIP, A TEXAS LIMITED PARTNERSHIP
O.L. STEGER, III, GENERAL PARTNER

Address 504 W. RUSK, ROCKWALL, TEXAS 75087 Phone 214/722-3334

Name of Land Planner/Surveyor/Engineer LAWRENCE A. CATES & ASSOCIATES, INC.

Address 14200 MIDWAY ROAD, 122 Phone 214/385-2272
DALLAS, TEXAS 75244

Total Acreage 32.4557 AC. Current Zoning A & C

Number of Lots/Units NINE (9)

Signed Lawrence A. Cates

The Final Plat shall generally conform to the Preliminary Plat, as approved by the City Council and shall be drawn to legibly show all data on a satisfactory scale, usually not smaller than one inch equals 100 feet. The Final Plat shall be submitted on a drawing which is 18" x 24".

The following Final Plat Checklist is a summary of the requirements listed under Section VIII of the Rockwall Subdivision Ordinance. Section VIII should be reviewed and followed when preparing a Final Plat. The following checklist is intended only as a reminder and a guide for those requirements.

Information

Provided of Shown on Plat	Not Applicable	
XX		1. Title or name of development, written and graphic scale, north point, date of plat and key map

XX	____	2. Location of the development by City, County and State.

____	XX	3. Location of development tied to a USGS monument, Texas highway monument or other approved benchmark
XX	____	4. Accurate boundary survey and property description with tract boundary lined indicated by heavy lines
____	XX	5. If no engineering is provided show contours of 5 ft. intervals
XX	____	6. Accurate plat dimensions with all engineering information necessary to reproduce plat on the ground
XX	____	7. Approved name and right-of-way width of each street, both within an adjacent to the development
XX	____	8. Locations, dimensions and purposes of any easements or other rights-of-way
XX	____	9. Identification of each lot or site and block by letter and number and building lines
____	____	10. Record owners of contiguous parcels of unsubdivided land, names and lot patterns of contiguous subdivisions, approved Concept Plans, reference recorded subdivision plats or adjoining platted land by record name and by deed record volume and page
XX	____	11. Boundary lines, dimensions and descriptions of open spaces to be dedicated for public use of the inhabitants of the development
____	____	12. Certificate of dedication of all streets, alleys, parks and other public uses signed by the owner or owners (see wording)

X		13. Designation of the entity responsible for the operation and maintenance of any commonly held property and a waiver releasing the City of such responsibility, a waiver releasing the City for damages in establishment or alteration of graded (see wording)
X		14. Statement of developer responsibility for storm drainage improvements (see wording)
X		15. Instrument of dedication or adoption signed by the owner or owners (see wording)
X		16. Space for signatures attesting approval of the plat (see wording)
X		17. Seal and signature of the surveyor and/or engineer responsible for surveying the development and/or the preparation of the plat (see wording)
X		18. Compliance with all special requirements developed in preliminary plat review
XX		19. Statements indicating that no building permits will be issued until all public improvements are accepted by the City (see wording)
		20. Submit along with plat a calculation sheet indicating the area of each lot
	X	21. Attach copy of any proposed deed restrictions for proposed subdivision

City of Rockwall
Planning And Zoning Commission

Agenda Date: June 11,1996

Applicant: Weber & Company

Agenda Item: **96-37-FP/SP/LP** Consider approval of a request from Weber and Company for a final plat, site plan and landscape plan for Steger Towne Crossing Phase I.

Action Needed: Discuss and consider approval of the request

Background Information:

PLAT

This property is part of the Steger Towne Crossing development. This plat contains 9 lots as part of the first phase of the development. Cross access and fire lanes are provided to serve this site. The proposed anchor tenants on the property include Target and Albertson's. We are finalizing the 15' R.O.W dedication for FM-740.

LANDSCAPE PLAN

At the work session there was some discussion regarding clustering the trees. Staff reviewed this and was unable to find an acceptable alternative that would brake up this massive parking lot.

Additional screening has been added to the rear of the Albertson's store and along the chain link fence behind the Target on the north side of Steger Towne Drive.

SITE PLAN

The site plan meets the parking and site requirements for the commercial zoning district.

Recommendation: Staff recommends approval of this request with the following conditions;

1. 15' R.O.W. dedication for FM-740 prior to the plat being filed.
2. Approval of the engineering plans.

3. The existing temporary fire lane and access drives on the Food Lion site be abandon or reconfigured prior to the construction of that portion of Steger Towne Drive.

4. The developer of the Steger Towne Crossing allow the property behind Albertson's to petition for cross access to the center.

CITY OF ROCKWALL
City Council Agenda

Agenda Date: June 17, 1996 **Agenda No.** V.F.

Agenda Item: **PZ-37-FP/SP/LP** Hold Public Hearing Regarding Request for Sign Variance Consider Approval of a Request from Weber and Company for a Final Plat, Site Plan, Landscape Plan and Sign Plan for Stegar Towne Crossing Phase I Generally located on the east side of FM-740 South of I-30 and Take Any Necessary Action.

Item Generated By:

Action Needed:

Background Information:

Attachments:

1. Copy of Planning & Zoning Recommendations

City of Rockwall
City Council

Agenda Date: June 17, 1996

Applicant: Weber & Company

Agenda Item: **96-37-FP/SP/LP** Consider approval of a request from Weber and Company for a final plat, site plan and landscape plan for Steger Towne Crossing Phase I.

Action Needed: Discuss and consider approval of the request

Background Information:

PLAT

This property is part of the Steger Towne Crossing development. This plat contains 9 lots as part of the first phase of the development. Cross access and fire lanes are provided to serve this site. The proposed anchor tenants on the property include Target and Albertson's. We are finalizing the 15' R.O.W dedication for FM-740. The right of way for FM-740 will need to be dedicated by separate instrument.

LANDSCAPE PLAN

At the Commission work session there was some discussion regarding clustering the trees instead of the proposed diamond tree islands. Staff reviewed this and was unable to find an acceptable alternative that would brake up this massive parking lot.

Additional screening has been added to the rear of the Albertson's store and along the chain link fence behind the Target on the north side of Steger Towne Drive.

This landscaping plan was revised to match the Boston Market landscaping to achieve a uniform planting along Steger Towne Drive.

SITE PLAN

The site plan meets the parking and site requirements for the commercial zoning district. The anchor stores are still finalizing the plans for exterior materials and colors. Staff has met with

the architects for the anchor stores, and the building plans are still being designed and reviewed by their corporate offices.

Staff Recommendation: Staff recommends approval of this request with the following conditions;

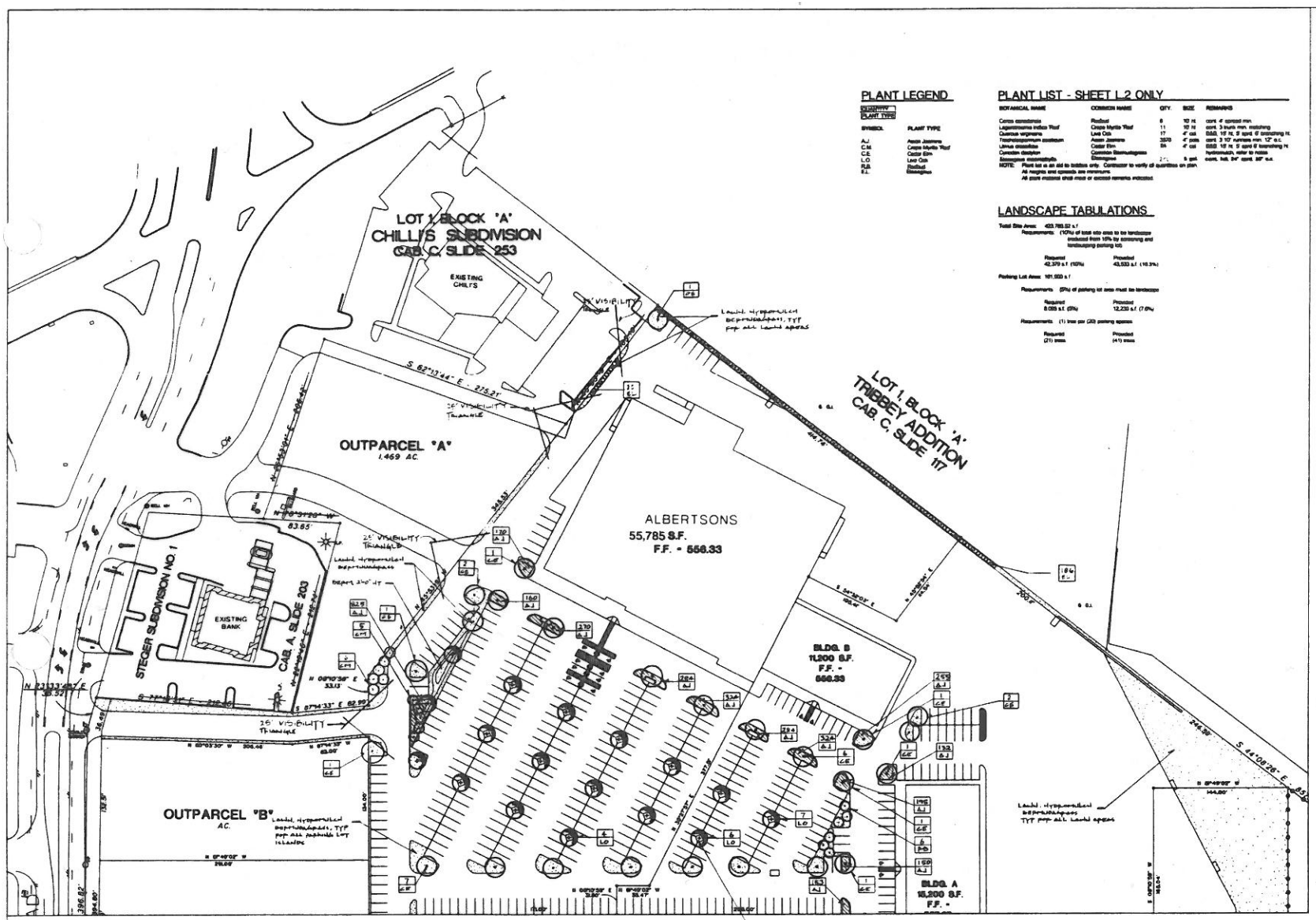
1. 15' R.O.W. dedication by separate instrument for FM-740 prior to the plat being filed.

2. Approval of the engineering plans.

3. The existing temporary fire lane and access drives on the Food Lion site be abandon or reconfigured prior to the construction of that portion of Steger Towne Drive.

4. The developer of the Steger Towne Crossing allow the property behind Albertson's to petition for cross access to the center.

P & Z Recommendation: Approval with staff conditions.



PLANT LEGEND

SYMBOL	PLANT TYPE
JJ	Asian Jasmine
CM	Crape Myrtle 'Red'
CE	Cedar Elm
LO	Live Oak
RB	Redbud
EU	Eleagnus

PLANT LIST - SHEET L.2 ONLY

BOTANICAL NAME	COMMON NAME	QTY.	SIZE	REMARKS
Cercis canadensis	Redbud	6	10' ht.	cont. 4' spread min.
Lagerstroemia indica 'Red'	Crape Myrtle 'Red'	11	10' ht.	cont. 3 trunk min. matching
Quercus virginiana	Live Oak	17	4" cal.	B&B, 16' ht. 5' spd. 6' branching ht.
Trachelospermum asiaticum	Asian Jasmine	3329	4" pots	cont. 3 10" runners min. 12" o.c.
Ulmus crassifolia	Cedar Elm	84	4" cal.	B&B, 16' ht. 5' spd. 6' branching ht.
Cynodon dactylon	Common Bermudagrass			hydromulch, refer to notes
Eleagnus angustifolia	Eleagnus	21	5 gal.	cont., full, 24" cont. 36" o.c.

NOTE: Plant list is an aid to bidders only. Contractor to verify all quantities on plan.
All heights and spreads are minimums.
All plant material shall meet or exceed remarks indicated.

LANDSCAPE TABULATIONS

Total Site Area: 423,765.52 s.f.

Requirements: (10%) of total site area to be landscape enclosed from 18th by screening and landscaping parking lot).

Required	Provided
42,379 s.f. (10%)	43,533 s.f. (10.3%)

Parking Lot Area: 161,553 s.f.

Requirements: (5%) of parking lot area must be landscape

Required	Provided
8,078 s.f. (5%)	12,235 s.f. (7.6%)

Requirements: (1) tree per (20) parking spaces

Required	Provided
(21) trees	(41) trees

0 25 50 100

STATE OF TEXAS
REGISTERED LANDSCAPE ARCHITECT

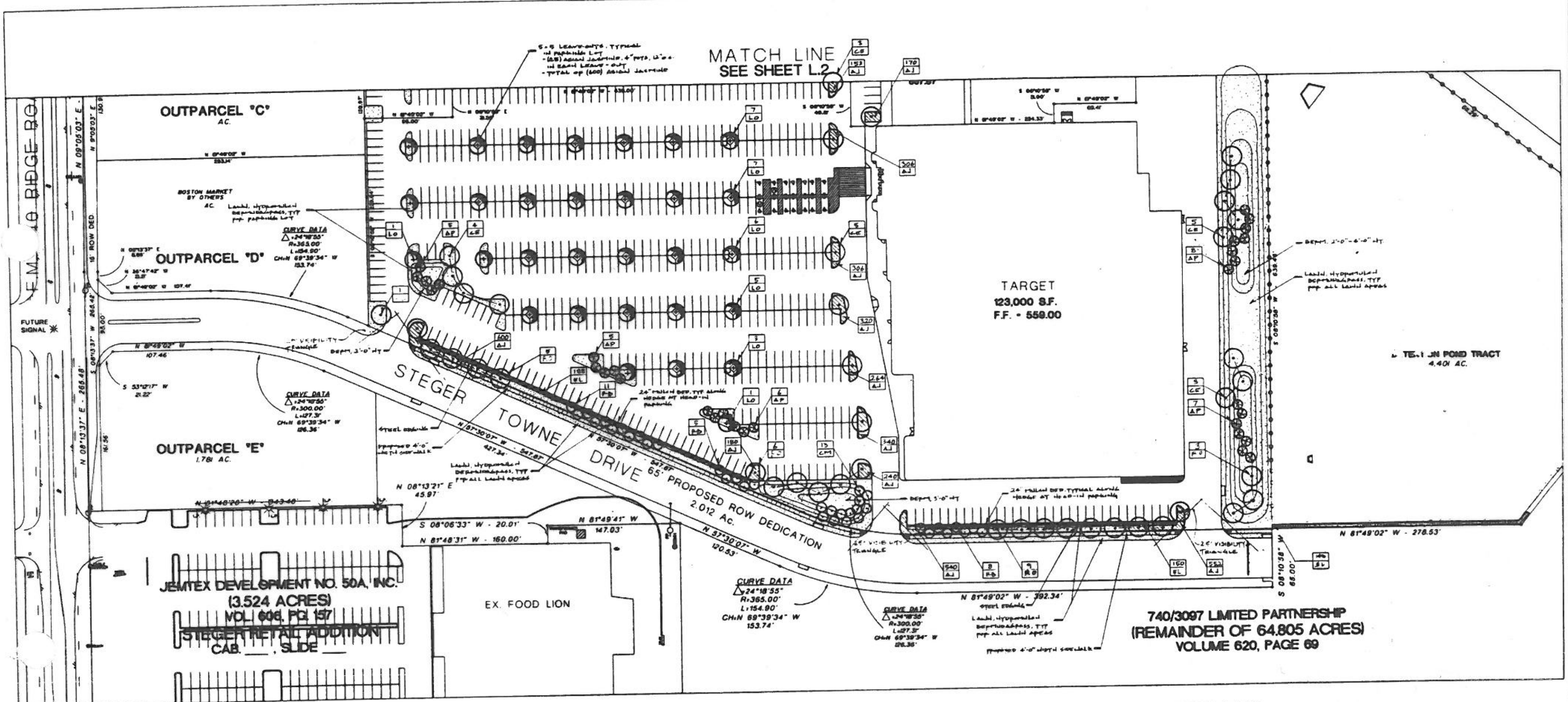
SITE
STEVEN B. RAHE, INC.
The Grocery Building
703 McKinney Avenue
Suite 428, LB 107
Dallas, Texas 75202
Tel 214 871 0883
Fax 214 871 0545

REV.	DATE	REMARKS

LANDSCAPE PLAN - ALBERTSONS
STEGER TOWNE CROSSING
F.M. 740 (RIDGE ROAD) AND I.H. 30
CITY OF ROCKWALL, TEXAS

LAWRENCE A. CATES & ASSOC., INC.
(214) 699-2272
CONSULTING ENGINEERS
DALLAS, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
SA	MA	21 MAY 96	1"=50'	S.P.		L.2



PLANT LEGEND

QUANTITY
PLANT TYPE

SYMBOL	PLANT TYPE
A.J.	Asian Jasmine
A.P.	Austrian Pine
C.M.	Crape Myrtle 'Red'
C.E.	Cedar Elm
E.I.	Elaeagnus
L.O.	Live Oak
R.B.	Redbud
R.O.	Shumard Red Oak

PLANT LIST - SHEET L.1 ONLY

BOTANICAL NAME	COMMON NAME	QTY.	SIZE	REMARKS
Cercis canadensis	Redbud	24	10' ht.	cont. 4' spread min.
Elaeagnus macrophylla	Elaeagnus	483	5 gal	cont. full 24" sprd. 24" o.c.
Lagerstroemia indica 'Red'	Crape Myrtle 'Red'	13	10' ht.	cont. 3 trunk min. matching
Quercus virginiana	Live Oak	30	4" cal	B&B, 15' ht, 6' sprd, 6' branching ht.
Pinus nigra	Austrian Pine	31	10' ht.	cont. or B&B, full, 4' spread min.
Trachelospermum asiaticum	Asian Jasmine	4556	4" pots	cont. 3 1/2' runners min. 12" o.c.
Ulmus crassifolia	Cedar Elm	21	4" cal.	B&B, 15' ht, 5' sprd 6' branching ht.
Cynodon dactylon	Common Bermudagrass			hydromulch, refer to notes
Quercus shumardii	Shumard Red Oak	23	4" cal.	B&B, 15' ht, 5' sprd, 6' branching ht.

NOTE: Plant list is an aid to bidders only. Contractor to verify all quantities on plan.
All heights and spreads are minimums.
All plant material shall meet or exceed remarks indicated.

LANDSCAPE NOTES

1. Contractor shall verify locations of all existing and proposed site elements and notify Architect of any discrepancies. Survey data of existing conditions was provided by others.
2. Contractor shall locate all existing underground utilities and notify Architect of any conflicts. Contractor shall exercise caution when working in the vicinity of underground utilities. Contractor shall review Engineers Drawings for extent of existing and proposed utilities.
3. Contractor is responsible for obtaining all required landscape and irrigation permits.
4. Contractor to provide a minimum 2% slope away from all structures.
5. All planting beds and lawn areas to be separated by steel edging, unless noted otherwise.
6. All planting beds to be mulched with 2" layer of specified mulch.
7. All landscape areas to be 100% irrigated with an underground automatic irrigation system.
8. All lawn areas to be Hydromulch unless noted otherwise.

HYDROMULCH NOTES

1. Refer to plan for locations of hydromulch seeding.
2. Grass seed shall be extra hulled and treated lawn type seed, delivered to the site in it's original unopened container, and shall meet state law requirements.
3. Fiber - Shall be one hundred (100%) percent Wood Cellulose Fiber, delivered to the site in it's original unopened container. Use 'Conwed' or equal.
4. Fiber Tack - Shall be delivered to the site in it's original unopened container, and shall be 'Terra-Tack One', as manufactured by Grass Growers, Inc., or equal.
5. Hydromulch with specified seed at a rate of two (2) pounds per one thousand (1000) sf.
6. If installation occurs between September 1 and April 1, or after the threat of last freeze, all hydromulch areas to be Winter Ryegrass. Spread at a rate of four (4) pounds per one thousand (1000) square feet. Contractor shall be required to Re-hydromulch Bermudagrass the following growing season.
7. All lawn areas to be hydromulched, shall have one hundred (100%) percent coverage prior to final acceptance.
8. Until final acceptance, and until an approved stand of grass is achieved, maintain plantings by watering, cultivating, mowing, weeding, spraying, cleaning and replacing as necessary to keep plants in a vigorous, healthy condition. Maintenance period shall extend from time of seeding completion to final acceptance.
9. Contractor to establish a dense planting of grasses, free from lumps and depressions. Any part of the area failing to show uniform cover shall be redone, and such replacement shall continue until a dense lawn is established. Scattered bare spots will not be allowed.
10. In the event stockpiled topsoil is not available imported shall be brought in. Imported Topsoil shall be natural friable soil for region, known as bottomland soil, free from lumps, clay, toxic substances, roots, debris, vegetation, stones, containing no salt and black to brown in color.
11. Maintain original grades of lawn areas after commencement of planting and during maintenance period. Provide surface repair to ruts, edges, tracks, etc. Replant areas as required for final acceptance.
12. Take adequate precautions to protect the work against damage. Erect barricades and warning signs as necessary. No pre-emergent herbicides shall be used on any areas to receive seed.
13. The work will be accepted when a completed, undamaged stand of grass is achieved, as approved by the Landscape Architect and Owner.

MAINTENANCE NOTES

1. The Owner, tenant and their agent, if any, shall be jointly and severally responsible for the maintenance of all landscape.
2. All landscape shall be maintained in a neat and orderly manner at all times. This shall include mowing, edging, pruning, fertilizing, watering, weeding, and other such activities common to landscape maintenance.
3. All landscape areas shall be kept free of trash, litter, weeds, and other such material or plants not a part of this plan.
4. All plant material shall be maintained in a healthy and growing condition as is appropriate for the season of the year.
5. All plant material which dies shall be replaced with plant material of equal or better value.

LANDSCAPE TABULATIONS

TARGET LANDSCAPE TABULATIONS

Total Site Area: 437,194.29 s.f.
Requirements: (10%) of total site area to be landscape (reduced from 15% by screening and landscaping parking lot)

Required	Provided
43,719 s.f. (10%)	63,793 s.f. (14.6%)

Requirements: (5%) of required landscape area must be located in street yard

Required	Provided
21,860 s.f. (5%)	25,203 s.f. (6%)

Street Trees:
Requirements: (1) tree per 50 linear feet of frontage

Required	Provided
(21) trees	(21) trees

Parking Lot Area: 186,394 s.f.
Requirements: (5%) of parking lot area must be landscape

Required	Provided
9,319 s.f. (5%)	9,348 s.f. (5%)

Requirements: (1) tree per (20) parking spaces

Required	Provided
(31) trees	(30) trees

STATE OF TEXAS — BRIAN D. [illegible] — REGISTERED LANDSCAPE ARCHITECT

landscape architecture
STEVEN M. RAHN, INC.
The Brewery Building
703 McKinney Avenue
Suite 430 LB 107
Dallas, Texas 75202
Tel 214 871 0083
Fax 214 871 0545

0 25 50 100

REV.	DATE	REMARKS

LANDSCAPE PLAN - TARGET

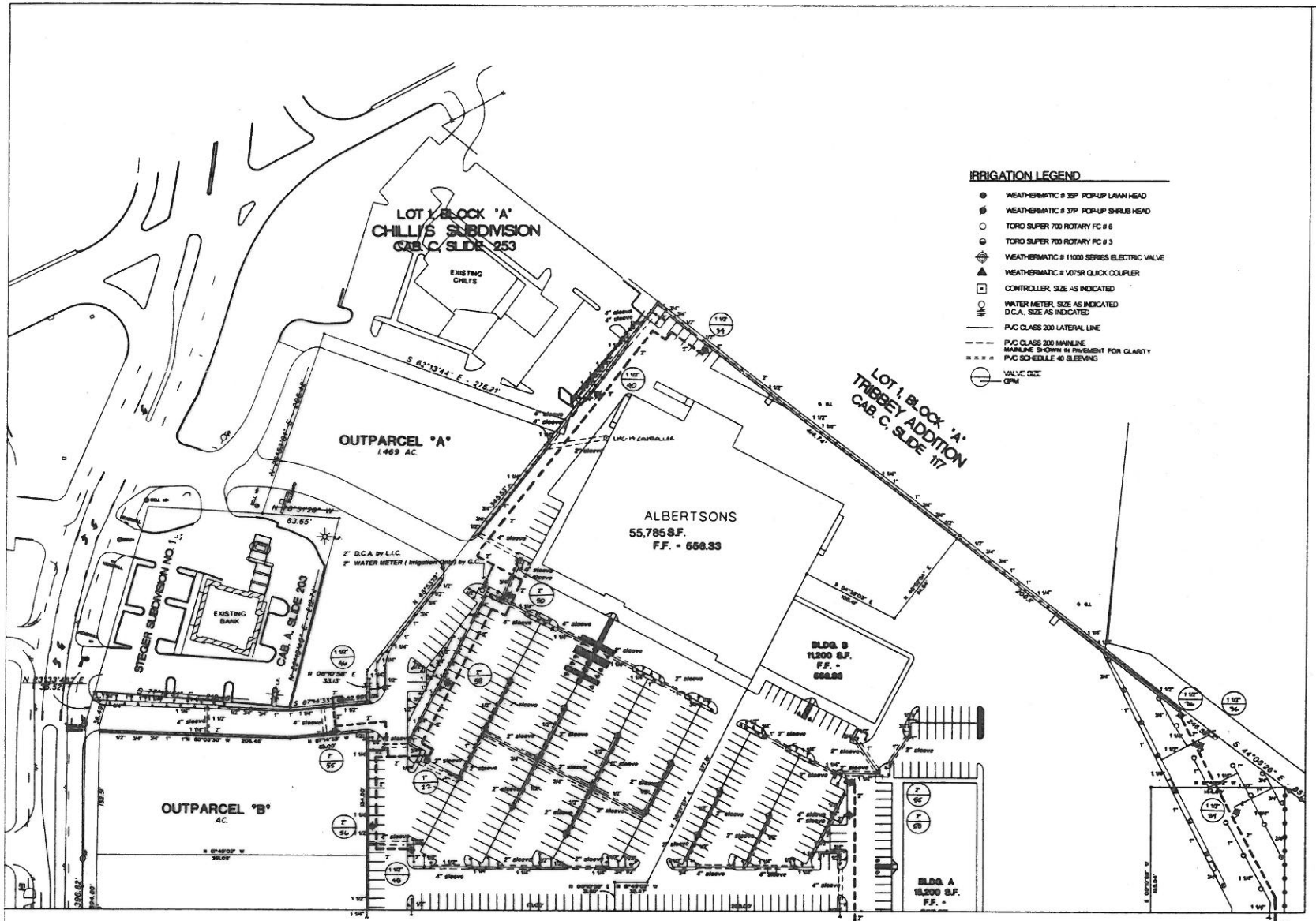
STEGER TOWNE CROSSING

F.M. 740 (RIDGE ROAD) AND I.H. 30

CITY OF ROCKWALL, TEXAS

LAWRENCE A. CATES & ASSOC., INC. — CONSULTING ENGINEERS, DALLAS, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
BA	MA	21 MAY 9[illegible]	1"=50'	S.P.	[illegible]	L.1



MATCH LINE
SEE SHEET L.3

IRRIGATION PLAN - ALBERTSONS
STEGER TOWNE CROSSING
F.M. 740 (RIDGE ROAD) AND I.H. 30
CITY OF ROCKWALL, TEXAS
LAWRENCE A. CATES & ASSOC., INC.

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
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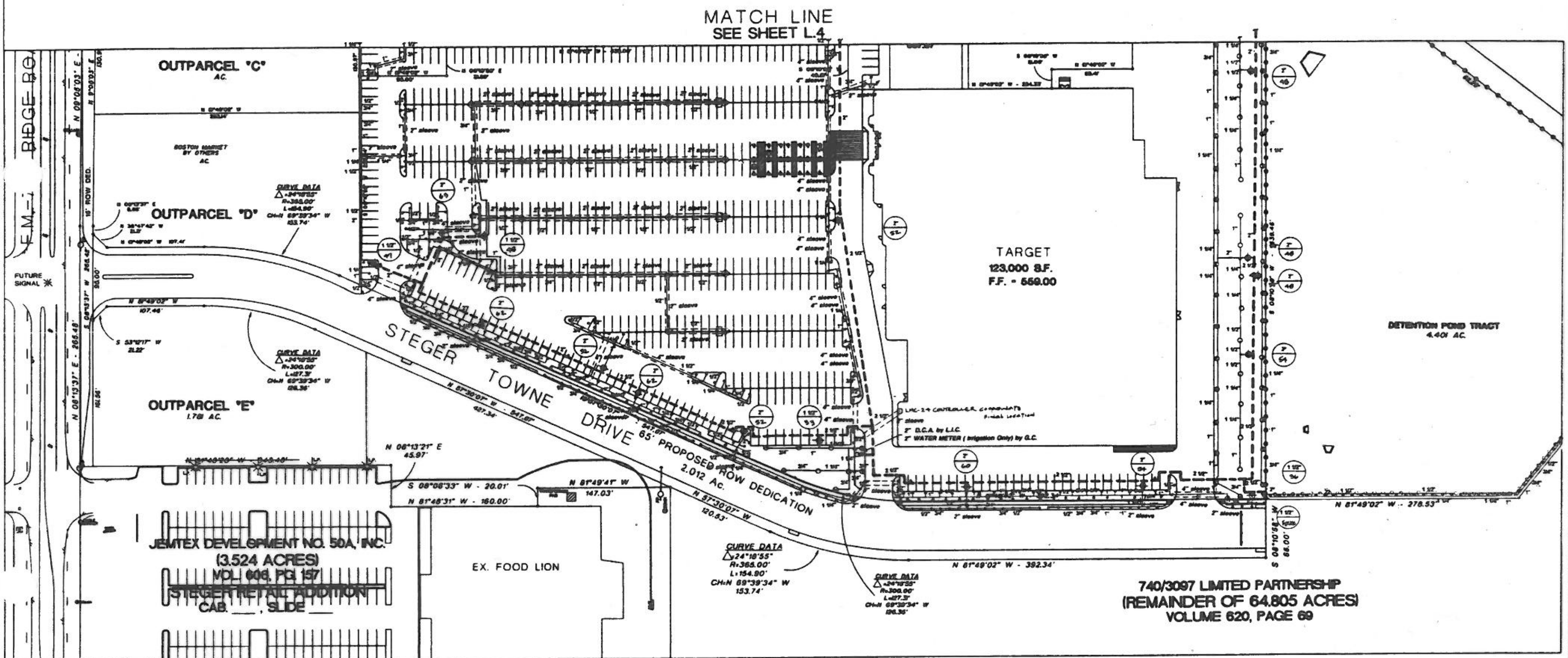
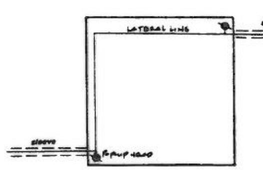




TYPICAL PARKING LOT LEAVE-OUT

1/2" = 1'-0"

IRRIGATION NOTES

1. All sprinkler equipment numbers reference the Weathermatic equipment catalog unless otherwise indicated.
2. LAWN SPRAY HEADS are #35P installed as per detail shown.
3. SHRUB SPRAY HEADS are #37P installed per detail shown.
4. ELECTRIC CONTROL VALVES shall be #11000CR installed per detail shown. Size valves as shown on plans. Valves shall be installed in valve boxes large enough to permit manual operation, removal of solenoid and/or valve cover without any earth excavation.
5. QUICK COUPLING VALVES shall be #V075R installed per detail shown. Swing joints shall be constructed using 3/4" Schedule 80 elbows. Contractor shall supply owner with three (3) #CO75 couplers and three (3) #10 swivel hose ells as part of this contract.
6. AUTOMATIC CONTROLLER shall be installed at location shown. Power (120V) shall be located in a junction box within five feet (5') of controller location by other trades.
7. All 24 volt valve wiring is to be UF 14 single conductor. All wire splices are to be permanent and waterproof.
8. SLEEVES shall be installed by General Contractor. Sleeve material shall be Schedule 40. Sizes as indicated on plans.
9. Ten days prior to start of construction, Contractor shall verify static water pressure. If static pressure is less than 50 PSI, do not start work until notified to do so by Owner.
10. All main line and lateral piping shall have a minimum of 12 inches of cover. All piping under paving shall have a minimum of 18 inches of cover.
11. The irrigation contractor shall coordinate installation of the system with the landscape contractor so that all plant material will be watered in accordance with the intent of the plans and specifications.
12. The irrigation contractor shall select the proper arc and radius for each nozzle to insure 100% and proper coverage of all lawn areas and plant material. All nozzles shall be Weathermatic 400 Series. All nozzles in parking lot islands and planting beds shall be low angle to minimize overspray on pavement surfaces. No water will be allowed to spray on building.

IRRIGATION LEGEND

- ● WEATHERMATIC # 35P POP-UP LAWN HEAD
- WEATHERMATIC # 37P POP-UP SHRUB HEAD
- ○ TORO SUPER 700 ROTARY PC # 6
- TORO SUPER 700 ROTARY PC # 3
- WEATHERMATIC # 11000 SERIES ELECTRIC VALVE
- ▲ WEATHERMATIC # V075R QUICK COUPLER
- CONTROLLER, SIZE AS INDICATED
- WATER METER, SIZE AS INDICATED / D.C.A., SIZE AS INDICATED
- PVC CLASS 200 LATERAL LINE
- PVC CLASS 200 MAINLINE / MAINLINE SHOWN IN PAVEMENT FOR CLARITY
- PVC SCHEDULE 40 SLEEVING
- VALVE SIZE / GPM

0 25 50 100

smr
landscape architecture
STEVEN M. RAHN, INC.
The Brewery Building
703 McKinney Avenue
Suite 435 LB 107
Dallas, Texas 75202
Tel 214 871 0083
Fax 214 871 0545

IRRIGATION PLAN - TARGET

STEGER TOWNE CROSSING

F.M. 740 (RIDGE ROAD) AND I.H. 30

CITY OF ROCKWALL, TEXAS

LAWRENCE A. CATES & ASSOC., INC.

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
JW	JW	21 MAY 98	1"=50'	B.P.	[illegible]	L.3

IRRIGATION SPECIFICATIONS

SECTION 02810 - IRRIGATION SPECIFICATIONS

PART 1 - GENERAL

1.01 SCOPE

A. Provide complete sprinkler installation as detailed and specified herein, including furnishing all labor, materials, and equipment for the proper installation. Work includes but is not limited to:
1. Trenching and backfill.
2. Automatic controlled system.
3. Upon completion of installation, supply drawings showing details of construction including location of mainline piping, manual and automatic valves, electrical supply to valves, and specifically exact location of automatic valves.

B. NOTE: All sleeves as shown on plans will be furnished by General Contractor. Meter and power source to be provided by General Contractor.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. See Irrigation Plans. See plans for controller, heads, and valves.

1.03 APPLICABLE STANDARDS

A. ASTM
B. D2464 - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Threaded, Schedule 40
C. D2466 - Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings Socket Type, Schedule 40
D. D2564 - Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings
E. Standard recommended practice for:
1. D2855 - Making Solvent - Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings

1.04 MAINTENANCE AND GURANTEE

A. Materials and workmanship shall be fully guaranteed for one (1) year after final acceptance.

B. Provide maintenance of system, including raising and lowering of heads to compensate for lawn growth, cleaning and adjustment of heads, raising and lowering of shrub heads to compensate for shrub growth, for one (1) year after completion of installation.

C. Guarantee is limited to repair and replacement of defective materials or workmanship, including repair of backfill settlement.

1.05 SUBMITTALS

A. Use of materials differing in quality, size, or performance from those specified will only be allowed upon written approval of Owner/Landscape Architect. The decision will be based on comparative ability of material or article to perform fully all purposes of mechanics and general design considered to be possessed by item specified.

Bidders desiring to make a substitution for specified sprinklers shall submit manufacturer's catalog sheet showing full specification of each type of sprinkler proposed as a substitute, including discharge in GPM maximum allowable operating pressure of sprinkler.

1.05 A. (cont.)

Approval of substitute sprinkler shall not relieve Contractor of his responsibility to demonstrate that final installed sprinkler system will operate according to intent of originally designed and specified system.

B. It is the responsibility of the Irrigation Contractor to demonstrate that final installed sprinkler system will operate according to intent of originally designed and specified system. If Irrigation Contractor notes any problems in head spacing or potential coverage, it is his responsibility to notify the Landscape Architect in writing before proceeding with work. Irrigation Contractor guarantees 100% coverage of all areas to be irrigated.

1.06 TESTING

A. Perform testing required with other trades, including earthwork, paving, and plumbing, to avoid unnecessary cutting, patching and boring.

1.07 COORDINATION

A. Coordinate installation with other trades, including earthwork, paving, and plumbing, to avoid unnecessary cutting, patching and boring.

PART 2 - PRODUCTS

2.01 GENERAL

A. Sprinkler Mains: Sprinkler Mains are that portion of piping from water source to operating valves. This portion of piping is subject to surges, being a closed portion of sprinkler system. Hydrant lines are considered a part of sprinkler main.

B. Lateral Piping: Lateral piping is that portion of piping from operating valve to sprinkler heads. This portion of piping is not subject to surges, being an "open end" portion of sprinkler system.

2.02 POLY VINYL CHLORIDE PIPE (PVC)

A. PVC pipe shall be manufactured in accordance with commercial standards noted herein.

B. Marking and Identification: PVC pipe shall be continuously and permanently marked with the following information: manufacturer's name, pipe size, type of pipe, and material, SDR number, product standard number, and the NSF (National Sanitation Foundation) seal.

C. PVC Pipe Fittings: Shall be of the same material as the PVC pipe specified and shall be compatible with PVC pipe furnished.

2.03 COPPER TUBING

A. Hard, straight, lengths of domestic manufacture only. No copper tube of foreign extrusion or any so-called irrigation tubing (thin wall) shall be used.

2.04 COPPER TUBE FITTINGS

A. Cast brass or wrought copper, sweat-solder type.

2.05 WIRE

A. Type UF with 4-64" insulation which is Underwriter's Laboratory approved for direct underground burial when used in a National Electric Code Class II Circuit (30 volts AC or less).

2.06 SCHEDULE 80 PVC NIPPLES

A. Composed of Standard Schedule 40 PVC Fittings and PVC meeting noted standards. No clamps or wires may be used. Nipples for 1812 heads and shrub risers to be nominal one-half (1/2") inch diameter by eight (8") inches long, where applicable.

B. Polyethylene nipples six (6") inches long to be used on all 1804 and 1806 pop-up spray heads.

2.07 MATERIALS - See Irrigation Plan

A. Sprinkler heads in lawn area as specified on plan.
B. PVC Pipe: Class 200 SPR 21
Copper Tubing (City Connection): Type "M"
24V Wire: Size 14, Type UF
C. Electric valves to be all plastic construction as indicated on plans.
D. Refer to drawing for backflow prevention requirements and flow valve. Coordinate exact location with Landscape Architect.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

A. Staking: Before installation is started, place a stake where each sprinkler is to be located in accordance with drawing. Staking shall be approved by Landscape Architect before proceeding.
B. Excavations: Excavations are unclassified and include earth, loose rock, rock or any combination thereof, in wet or dry state. Backfill trenches with material that is suitable for compaction and contains no lumps, clods, rock, debris, etc. Special backfill specifications, if furnished, take preference over this general specification.
C. Backfill: Flood or hand-tamp to prevent after settling. Hand rake trenches and adjoining area to leave grade in as good or better condition than before installation.
D. Piping Layout: Piping layout is diagrammatic. Route piping around trees and shrubs in such a manner as to avoid damage to plantings. Do not dig within ball of newly planted trees or shrubs.

3.02 PIPE INSTALLATION

A. Sprinkler Mains: Install a four (4") inch minimum trench with a minimum of twelve (12") inches of cover.
B. Lateral Piping: Install a four (4") inch wide minimum trench deep enough to allow for installation of sprinkler heads and valves, but in no case with less than eight (8") inches of cover.
C. Trenching: Remove lumber, rubbish, and large rocks from trenches. Provide firm uniform bearing for entire length of each pipe line to prevent uneven settlement. Wedging or blocking of pipe will not be permitted. Remove foreign matter or dirt from inside of pipe before welding, and keep piping clean by approved means during and after laying of pipe.

3.03 PVC PIPE AND FITTING ASSEMBLY

A. Solvent: Use only solvent recommended by manufacturer to make solvent-welded joints. Thouroughly clean pipe and fittings of dirt, dust and moisture before applying solvent.
B. PVC to metal connection: Work metal connections first. Use a non-hardening pipe dope such as Permatex No. 2 on threaded PVC adaptors into which pipe may be welded.

3.04 COPPER TUBING AND FITTING ASSEMBLY

A. Clean pipe and fitting thoroughly and lightly sand pipe connections to remove residue from pipe. Attach fittings to tubing in an approved manner using 50-50 soft solid core solder.

3.05 SHRUB SPRAY HEADS (FIXED)

A. Shrub Spray Heads: Supply in accordance with materials list, with nozzling in accordance with drawings. Drawings indicate size of nozzling and degree of arc. Determine correct degree of arc of nozzle (if conditions warrant) by area to be covered and by wind conditions that may affect coverage.
B. Height: Install heads on PVC Schedule 80 risers sufficiently high to water under shrubs and plants, or as directed by the Landscape Architect.

3.06 POP-UP SPRAY HEADS

A. Supply pop-up spray heads in accordance with materials list and plan. Attach sprinkler to lateral piping with a semi-flexible polyethylene nipple not less than three (3") inches or more than six (6") inches long.

3.07 VALVES

A. Supply valves in accordance with materials list and sized according to drawings. Install valves in a level position in accordance with Manufacturer's Specifications. See plan for typical installation of electric valve, valve box.

3.08 WIRING

A. Supply wiring from the automatic sprinkler controls to the valves. No conduit will be required for U.F. wire unless otherwise noted on the plan. Wire shall be tucked under the piping.

B. A separate wire is required from the control to each electric valve. A common neutral wire is also required from each control to each of the valves served by each particular control.

C. Bundle multiple wires and tape them together at ten (10') foot intervals. Install ten (10") inch expansion coil at not more than one hundred (100') foot intervals. Make splices waterproof.

3.09 AUTOMATIC SPRINKLER CONTROLS

A. Supply in accordance with Irrigation Plan. Install according to manufacturer's recommendations.

3.10 TESTING

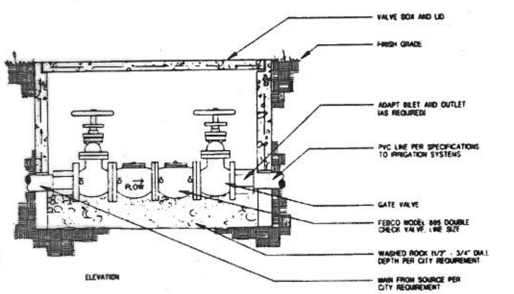
A. Sprinkler Mains: Test sprinkler main only for a period of twelve (12) to fourteen (14) hours under normal pressure. If leaks occur, replace joint or joints and repeat test.

B. Complete tests prior to backfilling. Sufficient backfill material may be placed in trenches between fittings to insure stability of line under pressure. In each case, leave fittings and couplings open to visual inspection for full period of test.

3.11 FINAL ADJUSTMENT

A. After installation has been completed, make final adjustment of sprinkler system in preparation for Landscape Architect's final inspection. Completely flush system to remove debris from lines and turning on system. Check sprinklers for proper operation and proper alignment for direction of flow. Check each section of spray heads for operating pressure and balance to other sections by use of flow adjustment and top of each valve. Check nozzling for proper coverage. Prevailing wind conditions may indicate that arch or angle of spray should be other than shown on drawings. In this case, change nozzles to provide correct coverage.

IRRIGATION SPECIFICATIONS



BACKFLOW PREVENTER

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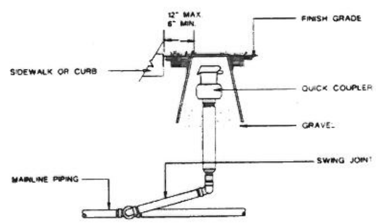

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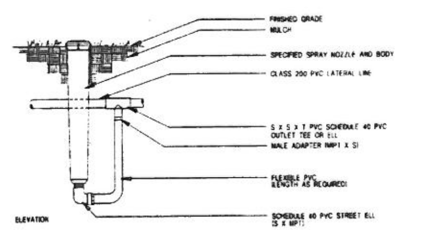

HIGH RISER ASSEMBLY

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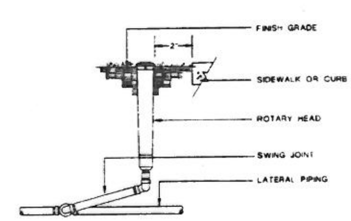

ROTARY HEAD

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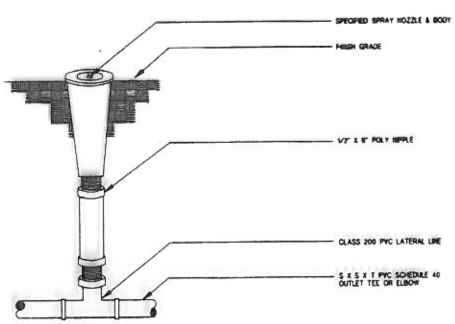

POP - UP RISER ASSEMBLY

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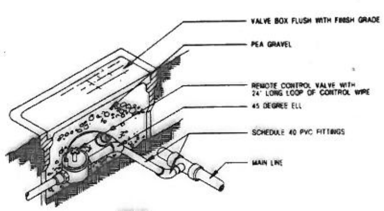

REMOTE CONTROL VALVE

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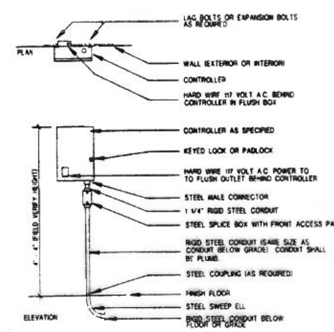


WALL MOUNTED CONTROLLER

not to scale

smr
landscape architecture
STEVEN M. RAHN, INC.
The Brewery Building
703 McKinney Avenue
Suite 438 LB 107
Dallas, Texas 75202
Tel 214 871 0083
Fax 214 871 0545

REV.	DATE	REMARKS

IRRIGATION SPECIFICATIONS / DETAILS

STEGER TOWNE CROSSING

F.M. 740 (RIDGE ROAD) AND I.H. 30

CITY OF ROCKWALL, TEXAS

LAWRENCE A. CATES & ASSOC.
14200 MIDWAY RD. STE. 122 (214) 385-2272
CONSULTING ENGINEERS
DALLAS, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
MA	MA	21 MAY 98	N.T.S.			L.6

City of Rockwall

FINAL DRAFT
TRAFFIC IMPACT STUDY FOR THE PROPOSED STEGER TOWNE CROSSING IN ROCKWALL, TEXAS

Prepared by:

DeShazo, Tang & Associates, Inc.
400 S. Houston St., Suite 330
Dallas, Texas 75202

January 24, 1996

City of Rockwall

FINAL DRAFT
TRAFFIC IMPACT STUDY FOR THE PROPOSED STEGER TOWNE CROSSING IN ROCKWALL, TEXAS

Prepared by:

DeShazo, Tang & Associates, Inc.
400 S. Houston St., Suite 330
Dallas, Texas 75202

January 24, 1996

Final Draft

Traffic Impact Study for the Proposed Steger Towne Crossing in Rockwall, Texas

Prepared for:

Mr. Bill Crolley
City of Rockwall

Prepared by:

DeShazo, Tang & Associates, Inc.
400 South Houston Street, Suite 330
Dallas, Texas 75202
(214) 748-6740
J95118

January 24, 1996

TABLE OF CONTENTS

LIST OF EXHIBITS

DeShazo, Tang & Associates, Inc.
Engineers ♦ Planners
400 S. Houston St, Suite 330
Dallas, Texas 75202-4802
214/748-6740 ♦ FAX 214/748-7037

TECHNICAL MEMORANDUM

To: Mr. Bill Crolley
City of Rockwall

From: DeShazo, Tang & Associates, Inc.

Date: January 24, 1996

Subject: **Traffic Impact Study for the Proposed Steger Towne Crossing in Rockwall, Texas; J95118**

INTRODUCTION

The purpose of this memorandum is to address the City of Rockwall's need to evaluate the traffic-related issues of the proposed Steger Towne Crossing located on the east side of Ridge Road (FM-740 between IH-30 and Horizon Road (FM-3097). Exhibit 1 illustrates the site location. The proposed 64.82 acre site includes 415,000 square feet of retail uses which may include a hardware store, a discount center, a grocery store and supporting retail. Additional commercial sites are planned on five outparcels, ranging in size from 0.94 acres to 1.37 acres. As shown in Exhibit 2, the site plan depicts the dedication of right-of-way for the proposed Steger Towne Drive from Ridge Road to a "New Road" adjacent to the property.

The impact of the site-generated trips on the adjacent roadway network was determined by analyzing the intersection and interchange capacity during the PM peak traffic hour for the following conditions:

- existing background traffic for 1995;
- projected background traffic for 1997;
- projected background 1997 traffic with site-related traffic.

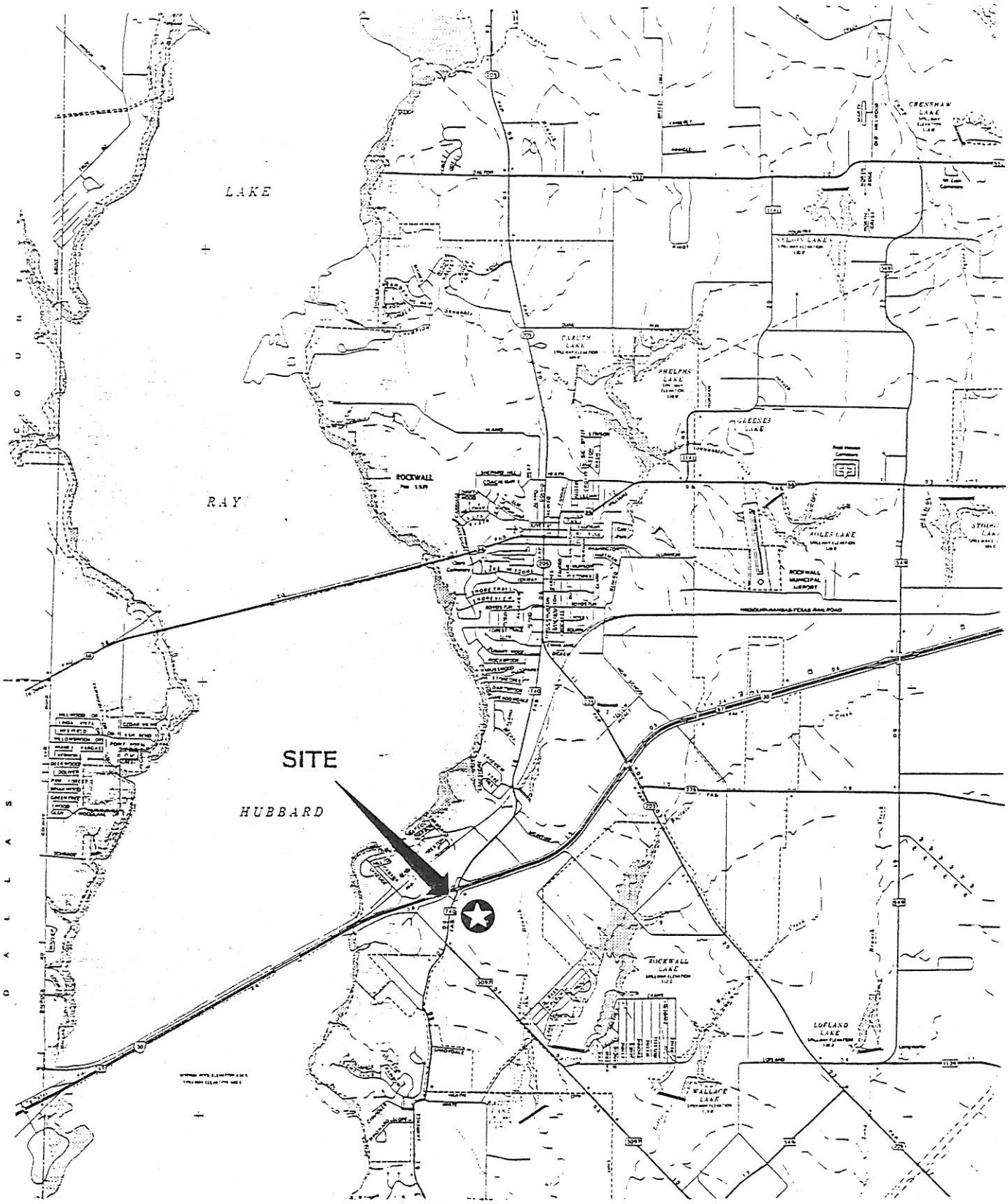
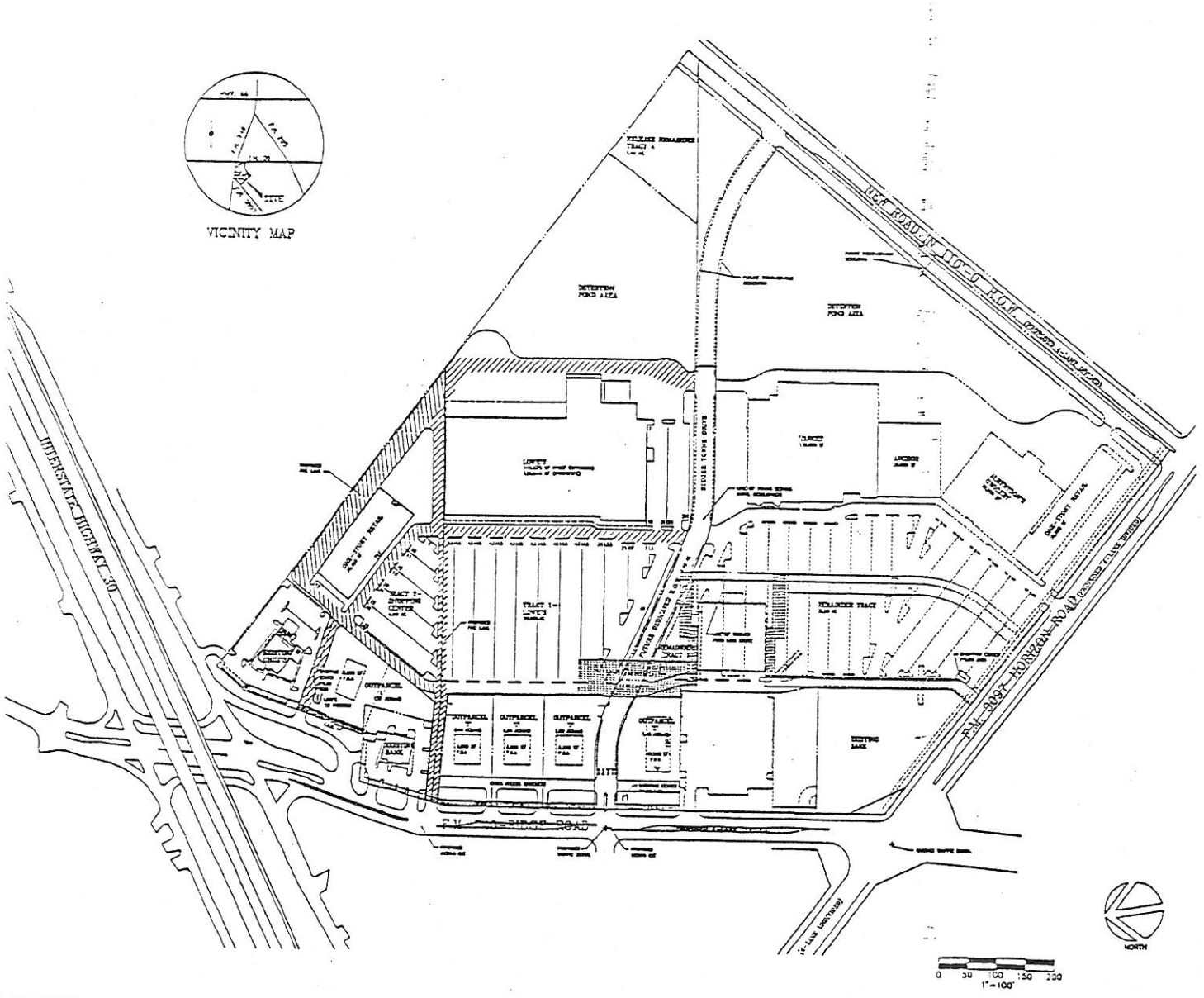


EXHIBIT 1
SITE LOCATION



Weber & Company
REAL ESTATE DEVELOPMENT/INVESTMENTS

GOOD FULTON & FARRELL ARCHITECTS

DTA

EXHIBIT 2
SITE PLAN

STUDY AREA ROADWAYS

The study area considered in this analysis contains a freeway, arterials and collectors in the vicinity of the site. Exhibit 3 depicts the City of Rockwall Thoroughfare Plan in the study area. Descriptions of these roadways are as follows:

IH-30 - is a grade-separated, east/west freeway providing access from Rockwall to Dallas to the west. Access ramps are provided to and from Ridge Road from the freeway main lanes from the east and west of Ridge Road. Continuous, one-way frontage roads are provided for both eastbound and westbound traffic.

Ridge Road (FM-740) - is a north/south, two-lane, undivided roadway connecting IH-30 and the southern portions of the city to SH-205 in the north, forming a key route in the local street network. The recently reconstructed interchange with IH-30 is signalized. The City's Thoroughfare Plan identifies this facility as a M4D (minor, four-lane, divided roadway) along the existing right-of-way from south of Horizon Road to north of IH-30. Ridge Road is planned for reconstruction by the Texas Department of Transportation (TxDOT) as a four-lane divided roadway from IH-30 to Horizon Road.

Horizon Road (FM-3097) - is currently a two-lane, two-way roadway east of Ridge Road. West of Ridge Road, Horizon Road is one-way northwest-bound, providing access to IH-30 and north of IH-30. Between IH-30 and Ridge Road, Horizon Road is currently being reconstructed and widened to accommodated two traffic flow as a four lane undivided roadway.

TRAFFIC ANALYSIS

Existing Traffic Volumes

From August 18 through November 2, 1995, DeShazo, Tang & Associates conducted 24-hour traffic volume counts on the study area roadways. Exhibit 4 illustrates the existing daily traffic volumes. Guidelines established by the North Central Texas Council of Governments (NCTCOG) state that two-lane arterials can acceptably accommodate approximately 14,500 vehicles per day in suburban areas while four-lane, divided arterials can accommodate up to 32,000 vehicles per day. Exhibit 5A depicts the roadway Levels-of-Service (LOS) for the streets adjacent to the site. LOS refers to the operational conditions within a traffic stream and their perception by motorists. There are six LOS conditions that are designated from "A" to "F", with "A" representing the best operational conditions and "F" the worst conditions. Typically, LOS above "E" are desired.

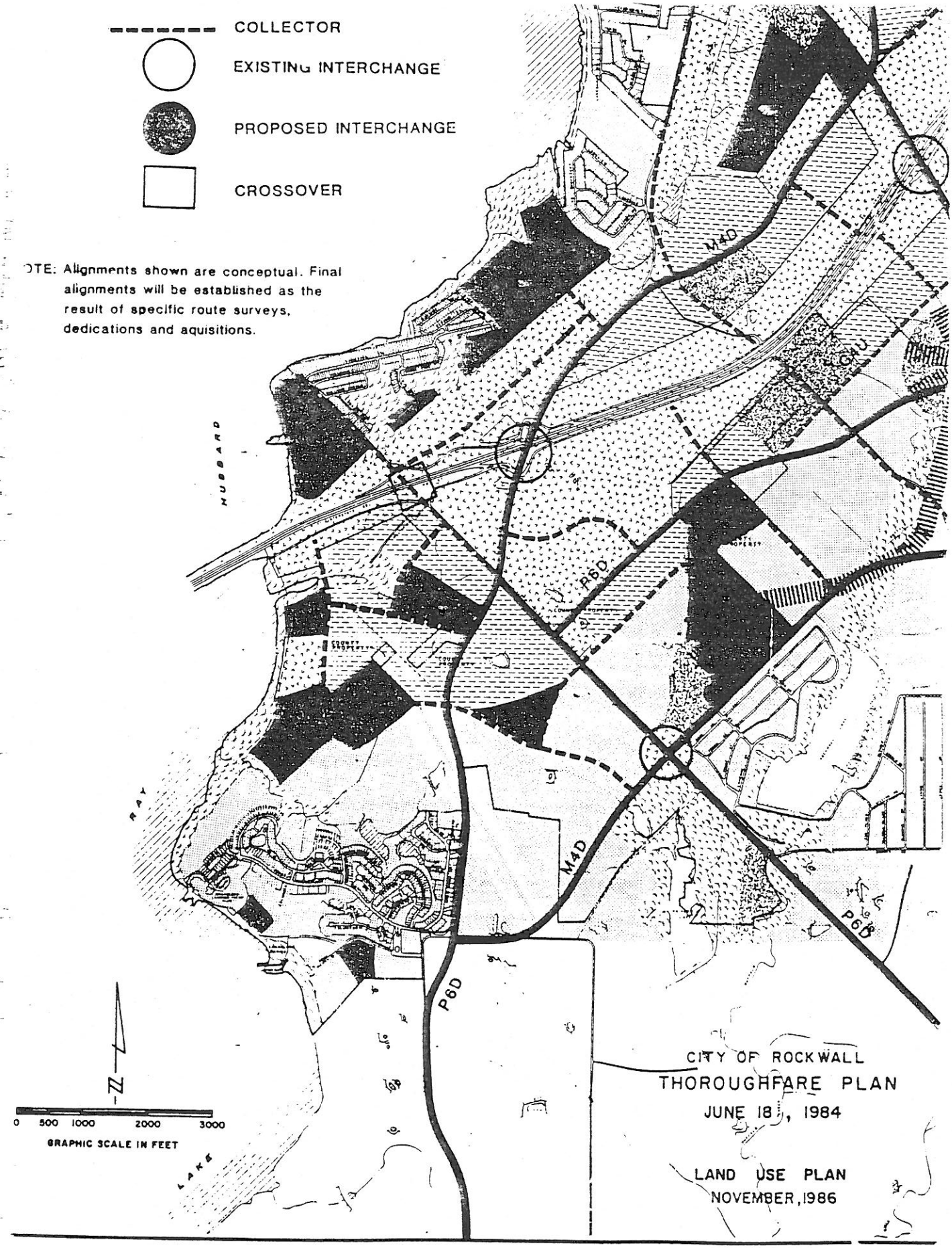


EXHIBIT 3
CITY OF ROCKWALL THOROUGHFARE PLAN

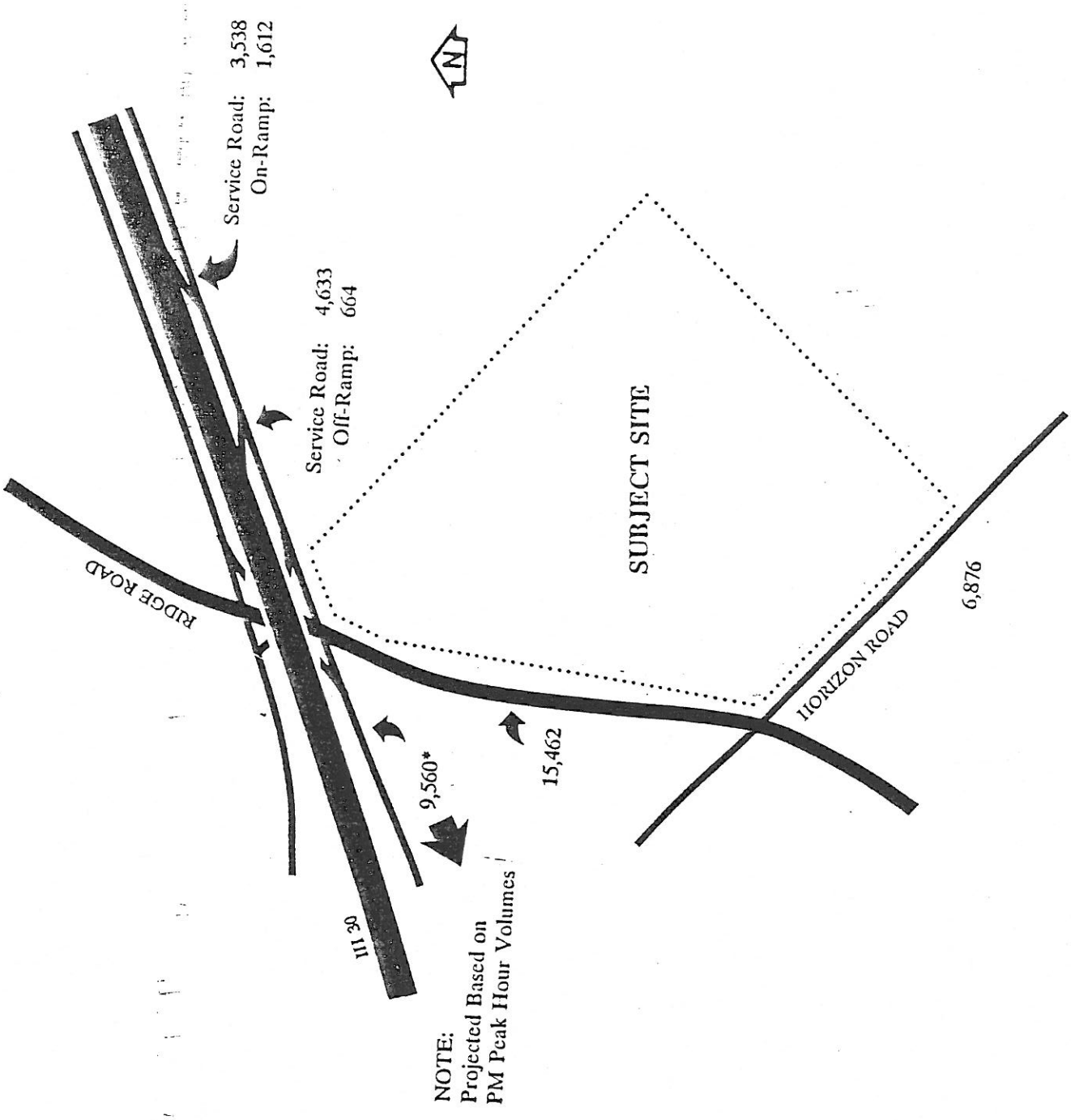


EXHIBIT 4

EXISTING DAILY TRAFFIC VOLUMES

EXHIBIT 5A
EXISTING 24-HOUR ROADWAY LEVEL-OF-SERVICE

Location	Existing Capacity	Existing Daily Traffic Volume	Percent of Existing Capacity Used/ LOS
Ridge Road between IH-30 and Horizon Road	14,000	15,462	110% / F
Horizon Road southeast of Ridge Road	12,500	6,876	55% / A
IH-30 eastbound frontage road between Ridge Road and off-ramp	7,000	4,633	66% / B
IH-30 eastbound frontage road east of Ridge Road after on-ramp	14,000	3,538	25% / A
IH-30 off-ramp east of Ridge Road	14,000	1,612	12% / A
IH-30 on-ramp east of Ridge Road	14,000	664	5% / A

As shown, only Ridge Road experiences a traffic demand which exceeds the existing capacity and operates at an undesirable LOS.

Existing PM peak traffic hour intersection turning movement volumes were also examined to determine the existing traffic operations. The intersection LOS is measured in terms of average delay per vehicle as defined in the following table.

INTERSECTION LEVEL-OF-SERVICE CRITERIA

LOS	SIGNALIZED Average Stopped Delay (seconds per vehicle)	UNSIGNALIZED Average Total Delay (seconds per vehicle)
A	$\leq$ 5.0	$\leq$ 5.0
B	5.1 to 15.0	5.0 to 10.0
C	15.1 to 25.0	10.1 to 20.0
D	25.1 to 40.0	20.1 to 30.0
E	40.1 to 60.0	30.1 to 45.0
F	> 60.0	$\geq$ 45.0

LOS results were determined using the 1994 Highway Capacity Software (HCS) for signalized and unsignalized intersections and PASSER-III for the freeway interchanges. Intersections examined included the Ridge Road/IH-30 interchange and Ridge Road at Horizon Road. The current LOS for these intersections during the evening peak hour are shown in Exhibit 5B.

EXHIBIT 5B
EXISTING PM PEAK HOUR
INTERSECTION LEVEL-OF-SERVICE

Intersection	LOS/Delay (sec/veh)
Ridge Road at IH-30 Westbound Frontage Road	B/8.2
Ridge Road at IH-30 Eastbound Frontage Road	B/11.8
Ridge Road at Carlisle Plaza/Steger Towne Drive	F/(unsignalized)
Ridge Road at Horizon Road	B/14.4

As shown, only the unsignalized intersection of Ridge Road at Carlisle Plaza/Steger Towne Drive operates at an unacceptable LOS.

A summary of the intersection analyses are provided in the Appendix.

Trip Generation

The Institute of Transportation Engineers (ITE) 5th Edition *Trip Generation Manual* was used to project the number of trip ends generated by the proposed development. The manual summarizes field research in trip generation rates for various land uses in the form of graphs and equations. The category for Shopping Center was used to estimate the trip-ends generated by the proposed development. Exhibit 6 presents a summary of the trip-ends generated by the proposed development for typical 24-hour and PM peak hour (of the adjacent street) periods. The evening peak hour represents the highest overall traffic volumes on the adjacent roadways. As shown in Exhibit 6, pass-by trips were applied to the outparcels planned for the development. It was assumed these outparcels would be developed as fast-food restaurants with drive-through lanes. According to the *Trip Generation Manual*, approximately 43 percent of the trips generated by these fast-food restaurants could be composed of existing traffic on the adjacent street system. Therefore, these pass-by trips are not considered newly-generated trips. As shown, the proposed development is expected to generate approximately 29,640 trips on a typical weekday, with about 2,344 of these trips occurring during the evening peak hour. Supplemental information from the *Trip Generation Manual* is provided in the Appendix.

EXHIBIT 6
TRIP GENERATION SUMMARY

Use	Amount (square feet)	Total Daily Trip Ends	PM Peak Hour of Adjacent Street Traffic		
			In	Out	Total
Shopping Center	415,380	17,210	813	813	1,626
Fast-Food w/Drive-through	6,000	3,793	114	105	219
Fast-Food w/Drive-through	6,000	3,793	114	105	219
Fast-Food w/Drive-through	6,000	3,793	114	105	219
Fast-Food w/Drive-through	6,000	3,793	114	105	219
Fast-Food w/Drive-through	10,500	6,637	199	184	384
TOTAL	449,880	39,018	1,468	1,418	2,886
Fast-Food Pass-by	43%	9,378	282	260	542
TOTAL ADDITIONAL TRIPS	**449,880**	**29,641**	**1,186**	**1,158**	**2,344**

Trip Distribution

Trip distributions for the site-related traffic were determined using demographic information provided by the NCTCOG. Trips related to the proposed Steger Towne Center were distributed throughout the study area based on the relative location of residential land uses. Based on this analysis, the projected additional traffic was assigned to the local roadway network using assumed shortest travel paths. Trip distribution results are summarized in Exhibit 7.

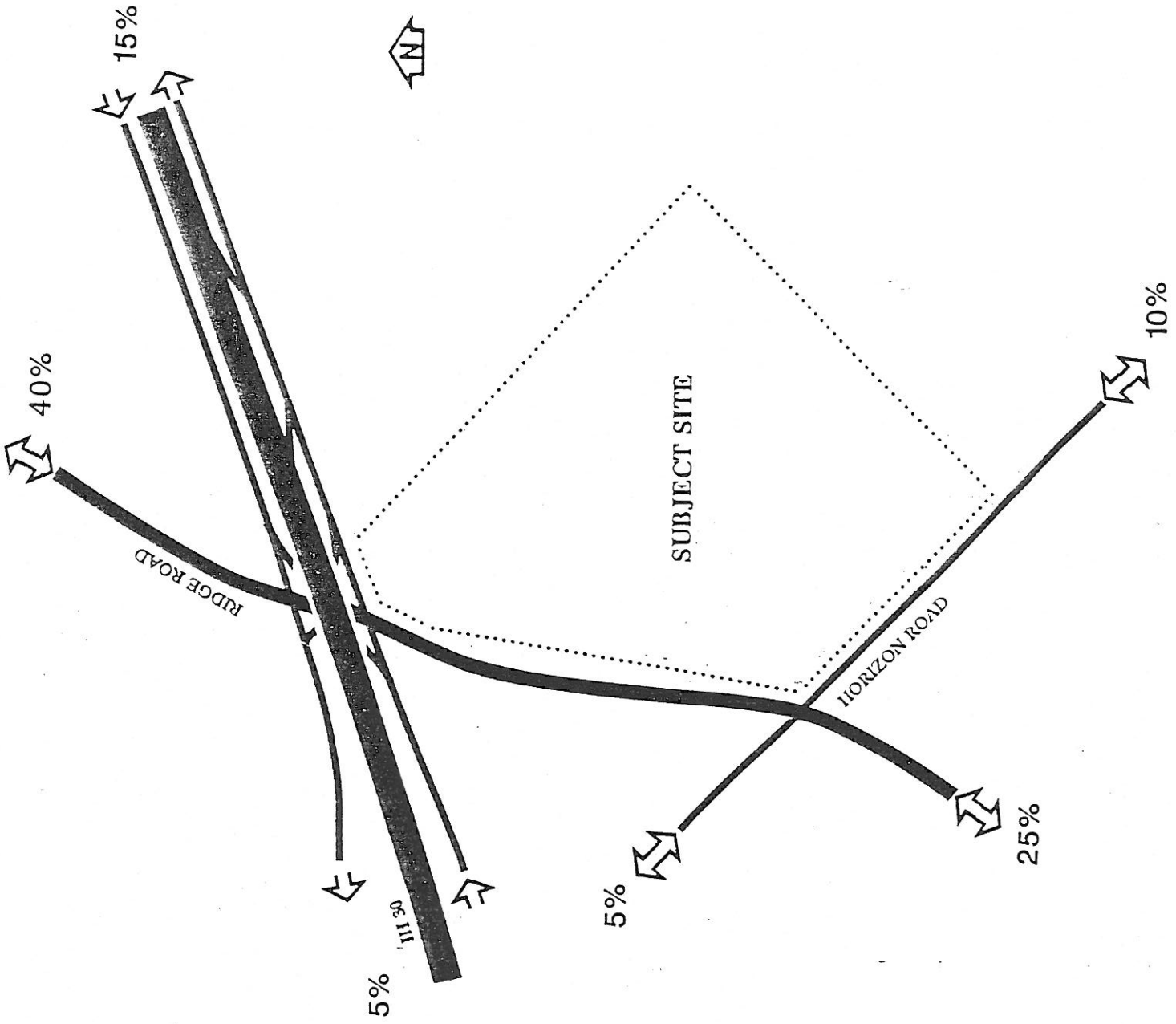


EXHIBIT 7

TRIP DISTRIBUTION

Projected Traffic Volumes

The projected background traffic volumes for the design year 1997 were obtained from the *Traffic Impact Study for the Proposed Wal-Mart Supercenter on IH-30 in Rockwall, Texas*. The projected background with Wal-Mart traffic was used as the base traffic volumes in this study. Ridge Road was assumed to be a four-lane, divided roadway adjacent to the site. Horizon Road was assumed to be a two-lane, undivided roadway adjacent to the site. West of Ridge Road, Horizon Road was assumed to be a two-way roadway. Median openings were assumed to be located on Ridge Road at the proposed Steger Towne Drive and at a driveway between the IH-30 interchange and the proposed Steger Towne Drive. At the north driveway location, left turns exiting Steger Towne Shopping Center and Carlisle Plaza were assumed to be prohibited. Exhibit 8 illustrates the proposed median opening locations and configurations.

Site-related trips were then assigned to the committed/programmed roadway network based on the trip distribution results. Exhibit 9 depicts the evening peak hour site-related traffic movements in the vicinity of the site. Exhibit 10 summarizes the projected background traffic with the site-related traffic volumes included.

Site Impact Determination

Intersection capacity analyses were conducted for the projected background, and projected background with site-related traffic conditions to determine the intersection levels of service with and without the development. The results are presented in Exhibit 11. A summary of the intersection analyses are provided in the Appendix.

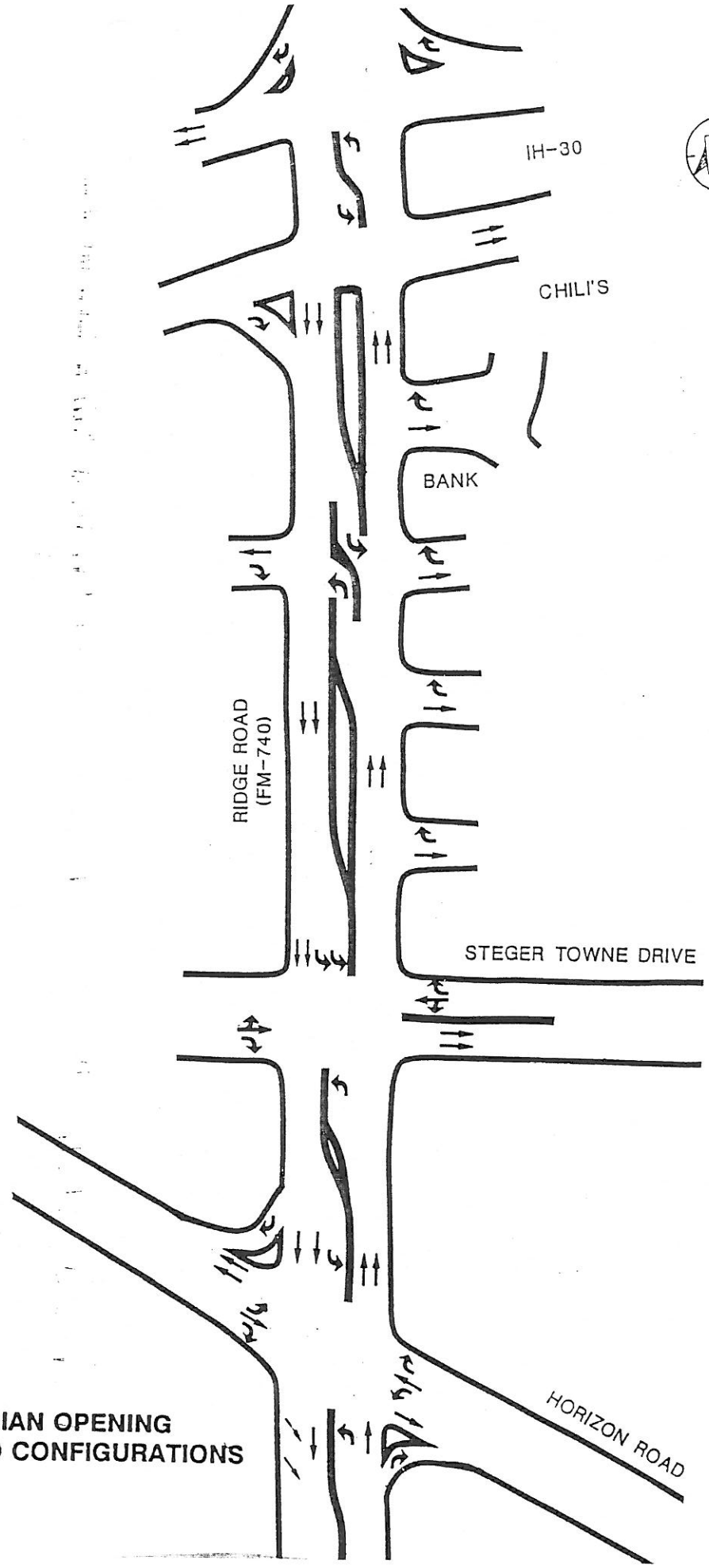


EXHIBIT 8
PROPOSED MEDIAN OPENING LOCATIONS AND CONFIGURATIONS

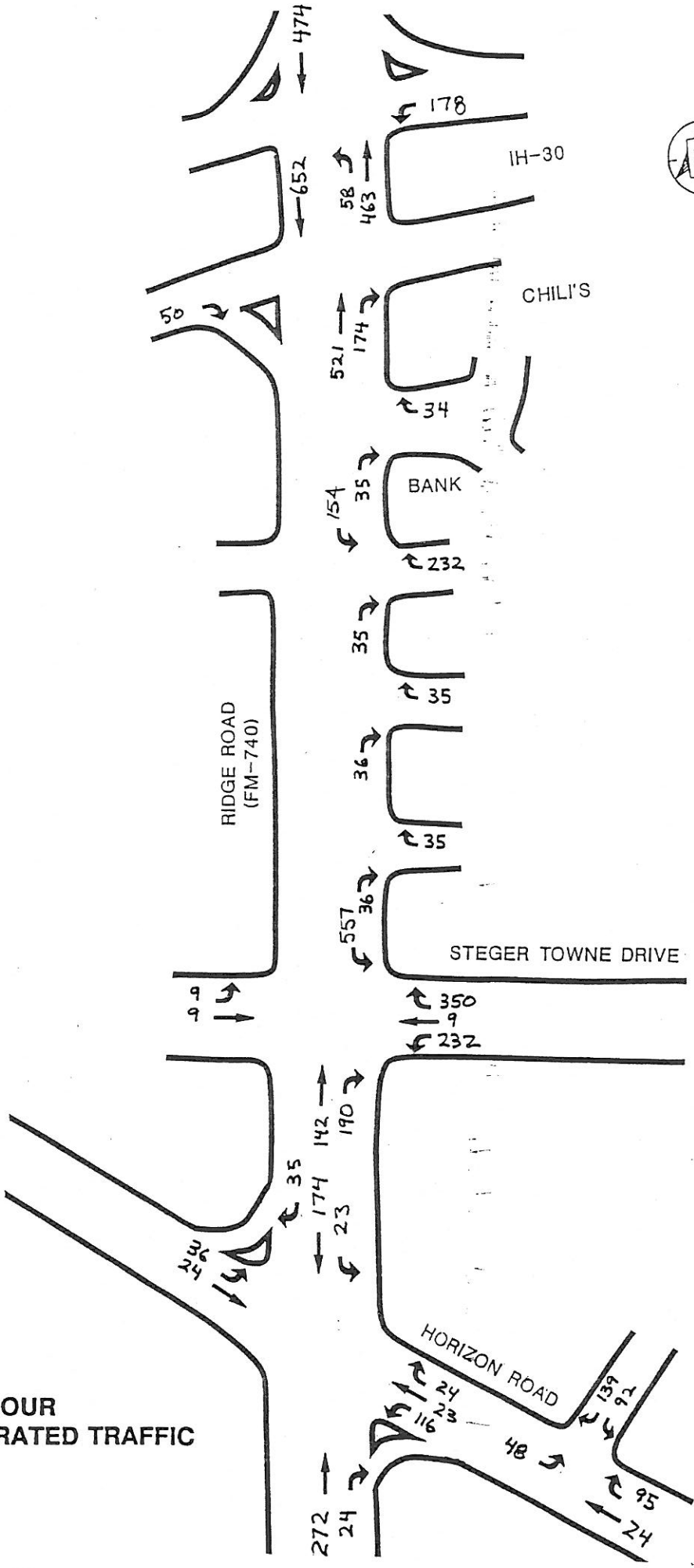


EXHIBIT 9
PM PEAK HOUR
SITE-GENERATED TRAFFIC

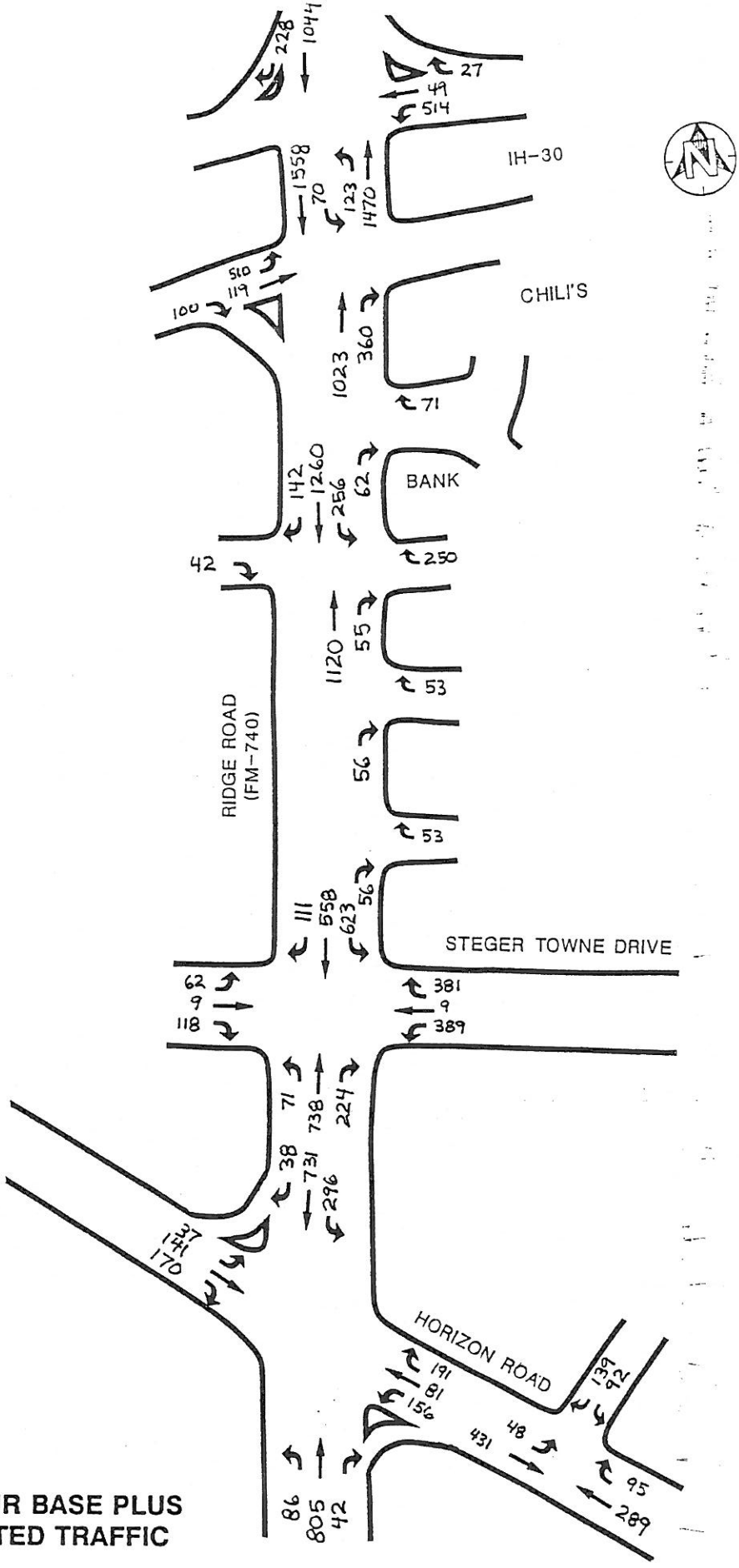


EXHIBIT 10
PM PEAK HOUR BASE PLUS
SITE-GENERATED TRAFFIC

EXHIBIT 11
LEVEL-OF-SERVICE SUMMARY
PM PEAK HOUR OF THE ADJACENT STREET

Intersection	Projected Background Traffic LOS/Delay(sec/veh)	Projected Background Traffic with Site Traffic LOS/Delay(sec/veh)
Ridge Road @ IH-30 WBFR	B/8.2	B/9.7
Ridge Road @ IH-30 EBFR	B/11.8	B/12.8
Ridge Road @ North Driveway (unsignalized)	D/1.2	D/3.0
Ridge Road @ Steger Towne Drive/ Carlisle Plaza	F/66.0 (unsignalized)	D/34.7 (signalized) C/21.4 (Dual SB left)
Ridge Road @ Horizon Road	B/14.4	C/21.8
Horizon Road @ South Driveway (unsignalized)	Not Applicable	C/2.9

RECOMMENDATIONS AND CONCLUSIONS

The programmed widening of Ridge Road between IH-30 and Horizon Road with recommended modifications to the intersection of Steger Town Boulevard is projected to accommodate all phases of the proposed Steger Towne Crossing Development. The projected LOS at IH-30 and Ridge Road is expected to remain the same with or without development of the subject site. The intersection of Ridge Road and Horizon Road will be reconstructed as part of the TxDOT Ridge Road widening. With these planned/programmed improvements, the intersection is projected to operate at a LOS C with an average vehicle delay of only 21.8 seconds.

The prevalent direction of site related trips occurs north of IH-30. Traffic traveling southbound on Ridge Road has two primary opportunities to execute left turn maneuvers into the subject site. The site's primary access will be at Steger Towne Drive, which is proposed to be signalized when warranted according to the Texas Manual of Uniform Traffic Control Devices (TxMUTCD). As part of this analysis, a need has been identified to provide for southbound dual left turn lanes on Ridge Road at Steger Towne Drive. This modification may be accommodated as part of the planned/programmed improvements to Ridge Road by TxDOT.

A channelized median providing a left turn for the northern driveway of Steger Town Crossing is also proposed. This type of median would allow all movements into the site. However, departing left turning vehicles (i.e. those desiring to travel southbound on Ridge Road), would do so via the intersection of Ridge Road at Steger Towne Drive/Carlisle Plaza. This recommended median treatment maximizes traffic operations of the public roadway system and enhances safety of the planned facilities.

It is, however, recognized that existing traffic movements in to and out of existing developments will be affected. Other median design options may be explored, however, such efforts are beyond the scope of this study. Generally, a full median opening at the northern driveway would present conflicts of turning movements with existing developments on both sides of Ridge Road. The projections of LOS for a full median opening at the northern driveway is "F". This value is primarily attributed to the projected delay of the left-turn departing vehicles. The delay to other movements, i.e. right-turn entering and departing vehicles and the south bound left-turning vehicles, would not be significantly affected with a full median opening design.

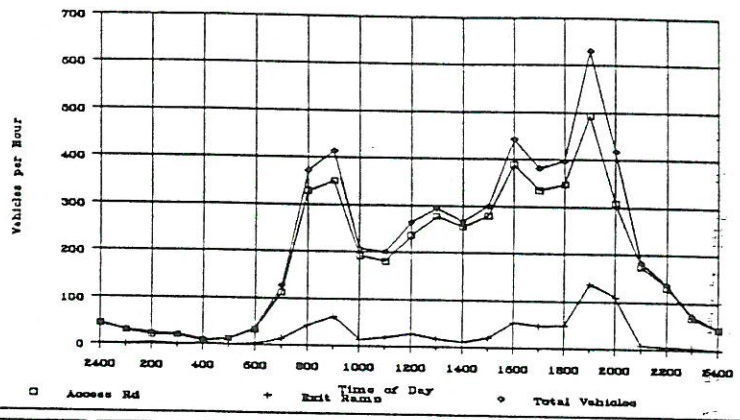
The remaining intersection analyses shown in Exhibit 11 reflect adequate LOS. It is also concluded that the existing and the programmed improvements to Ridge Road can accommodate the proposed development of Steger Towne Crossing. The construction of the "New Road" adjacent to the east boundary of the site and/or the extension of Steger Towne Drive to this road is not necessary from a transportation engineering analysis perspective as part of approval for this development.

Appendix

Automated Traffic Count — DeShazo Tang & Associates, Inc.

Street: *IH-30 Access Rd Eastbound*
Location: *600 feet east of Ridge Road/FM-740*
City/State: *Rockwall, Texas*
Project-ID#: *95118 – 162*
Date: *November 1, 1995*
Day of Week: *Wednesday*
Data Source: *DT&A*

24-Hour Volume: *5,297*



Time	Peak	EB Access Rd		IH-30 Exit Ramp	
2400					
15		9		1	
30		7		0	
45		3		0	
100		11	30	0	1
115		5		4	
130		9		1	
145		4		0	
200		2	20	0	5
215		7		0	
230		9		0	
245		2		0	
300		2	20	1	1
315		4		1	
330		1		0	
345		0		2	
400		3	8	0	3
415		1		0	
430		1		0	
445		3		0	
500		8	13	0	0
515		4		0	
530		9		0	
545		5		0	
600		15	33	3	3
615		17		0	
630		27		4	
645		28		2	
700		40	112	9	15
715		66		5	
730		66		5	
745		84		14	
800		113	329	19	43
815		98		29	
830	490	111	406	22	84
845		83		6	
900		59	351	6	63
915		50		3	
930		46		3	
945		48		7	
1000		48	192	2	15
1015		48		3	
1030		42		4	
1045		49		6	
1100		42	181	7	20
1115		51		6	
1130		70		12	
1145		48		7	
1200		68	237	3	28

Time	Peak	EB Access Rd		IH-30 Exit Ramp	
1200					
1215		60		7	
1230		62		2	
1245		78		6	
1300		78	278	2	17
1315		74		4	
1330		52		2	
1345		62		3	
1400		68	256	3	12
1415		66		3	
1430		75		4	
1445		72		5	
1500		67	280	9	21
1515		89		8	
1530		100		14	
1545		114		16	
1600	443	86	389	16	54
1615		81		12	
1630		89		8	
1645		79		14	
1700		86	335	13	47
1715		94		10	
1730		97		17	
1745		85		12	
1800		72	348	10	49
1815		123		11	
1830		101		18	
1845		130		46	
1900		140	494	62	137
1915	686	126	497	63	189
1930		78		28	199
1945		49		11	
2000		56	309	7	109
2015		52		3	
2030		42		2	
2045		37		3	
2100		44	175	1	9
2115		37		2	
2130		40		2	
2145		27		0	
2200		27	131	2	6
2215		16		0	
2230		17		1	
2245		19		3	
2300		16	68	1	5
2315		20		0	
2330		9		1	
2345		9		0	
2400		6	44	0	1
Directional Volumes			4,633		664
24-Hour Volume					5,297

Equipment ID#: 3595

Street Observations

DeShaz Tang & Associates, Inc.

Street: *IH-30 Access Rd Eastbound*

Location: *600 feet east of*

Ridge Road/FM-740

City/State: *Rockwall, Texas*

Project-ID#: *95118 - 162*

I. Street Width:

II. Street Material:
Concrete

III. Curbing/Gutters?:
Concrete

IV. Number of Lanes: *1 (one) each*

V. Divided?: *Yes*

VI. Traffic Control Devices: *None*

VII. Pedestrian Crosswalks?: *Not Applicable*

VIII. Pedestrian Pushbutton?: *Not Applicable*

IX. On-street Parking: *Unmarked*

X. Posted Speed Limit: *Unmarked*

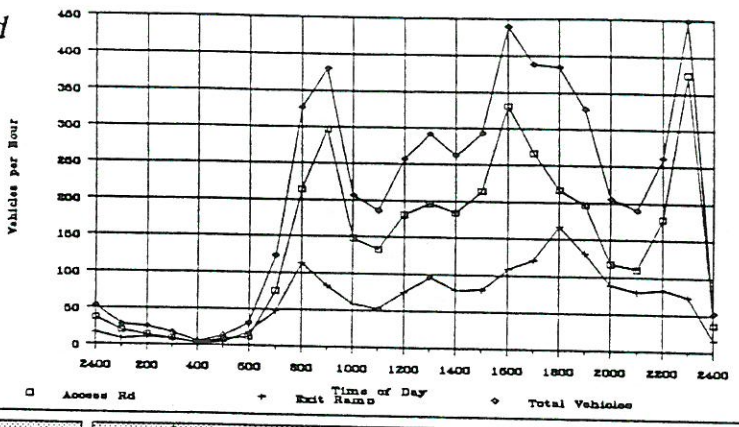
XI. Adjacent Land Uses: *Commercial, Agricultural*

XII. Additional Observations/Comments:

Automated Traffic Count — DeShaz Tang & Associates, Inc.

Street: *IH-30 Access Road Eastbound*
Location: *3,100 feet east of Ridge Road/FM-740*
City/State: *Rockwall*
Project-ID#: *95118 - 163*
Date:: *November 1, 1995*
Day of Week:. *Wednesday*
Data Source:: *DT&A*

24-Hour Volume: *5,150*



Time	Peak	EB Access Rd		IH-30 On-Ramp	
2400					
15		7		0	
30		6		1	
45		3		1	
100		4	20	6	8
115		2		6	
130		8		3	
145		2		2	
200		2	14	0	11
215		2		1	
230		4		6	
245		1		1	
300		2	9	0	8
315		1		1	
330		1		0	
345		0		1	
400		1	3	1	3
415		1		1	
430		0		1	
445		2		1	
500		6	9	2	5
515		3		1	
530		2		2	
545		1		7	
600		6	12	9	19
615		8		8	
630		16		11	
645		17		15	
700		34	75	14	48
715		28		30	
730		40		36	
745		54		25	
800		92	214	22	113 *
815		86		25	
830		95		29	
845	436	71	344	16	92
900		45	297	13	83
915		30		22	
930		29		19	
945		43		8	
1000		46	148	10	59
1015		33		12	
1030		29		12	
1045		41		14	
1100		30	133	15	53
1115		31		23	
1130		49		24	
1145		44		9	
1200		57	181	20	76

Time	Peak	EB Access Rd		IH-30 On-Ramp	
1200					
1215		42		21	
1230		43		21	
1245		64		19	
1300		47	196	35	96
1315		57		23	
1330		41		13	
1345		43		17	
1400		43	184	26	79
1415		48		15	
1430		56		24	
1445		49		26	
1500		61	214	15	80
1515		61		26	
1530		73		21	
1545		110		41	
1600		87	331	21	109
1615	449	66	336	30	113
1630	449	66	329	28	120
1645		64		30	
1700		71	267	33	121
1715		59		40	
1730		69		48	
1745	416	52	251	44	165
1800		37	217	35	167
1815		73		46	
1830		37		33	
1845		46		32	
1900		41	197	20	131
1915		28		29	
1930		34		22	
1945		23		15	
2000		32	117	23	89
2015		32		26	
2030		27		14	
2045		21		19	
2100		30	110	21	80
2115		26		27	
2130		36		23	
2145		53		19	
2200		63	178	15	84
2215		217		38	
2230	526	101	434	20	92
2245		40		6	
2300		17	375	10	74
2315		12		9	
2330		10		3	
2345		11		0	
2400		4	37	4	16
		Directional Volumes	3,538		1,612
			24-Hour Volume		5,150

Equipment ID#: 3592

Street Observations

DeShazo Tang & Associates, Inc.

Street: *IH-30 Access Road Eastbound*

Location: *3,100 feet east of Ridge Road/FM-740*

City/State: *Rockwall*

Project-ID#: *95118 - 163*

I. Street Width:

II. Street Material:

On-Ramp: Concrete; Access Rd: Asphalt

III. Curbing/Gutters?:

On-Ramp: Concrete; Access Rd: Concrete Curb on Left, Open Drainage on Right

IV. Number of Lanes: *On-Ramp: 1 (one); Access Rd: 2 (two)*

V. Divided?: *Yes*

VI. Traffic Control Devices: *None*

VII. Pedestrian Crosswalks?: *Not Applicable*

VIII. Pedestrian Pushbutton?: *Not Applicable*

IX. On-street Parking: *No*

X. Posted Speed Limit: *Unmarked*

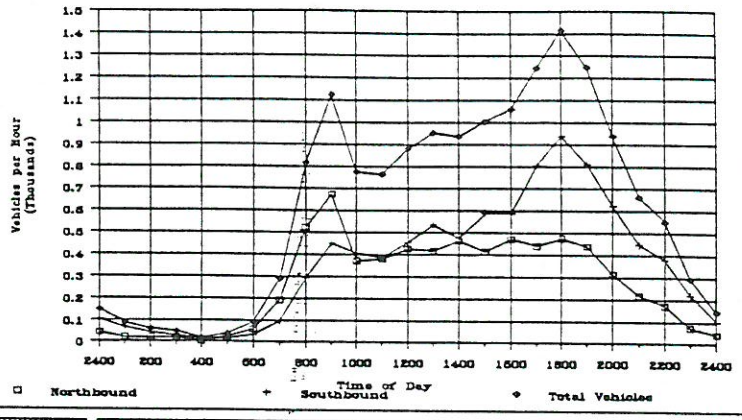
XI. Adjacent Land Uses: *Agricultural*

XII. Additional Observations/Comments:

Automated Traffic C nt — DeShaz Tang & Associates, Inc.

Street: *FM-740/Ridge Road*
Location: *1,000 feet south of IH-30*
City/State: *Rockwall, Texas*
Project-ID#: *95118 - 164*
Date: *November 1, 1995*
Day of Week: *Wednesday*
Data Source: *DT&A*

24-Hour Volume: *15,462*



Time	Peak	Northbound		Southbound	
2400					
15		11		18	
30		4		13	
45		3		24	
100		2	20	12	67
115		7		15	
130		8		8	
145		3		10	
200		2	20	8	41
215		4		5	
230		4		9	
245		4		10	
300		8	20	4	28
315		1		2	
330		0		5	
345		0		4	
400		2	3	4	15
415		3		4	
430		6		5	
445		6		2	
500		9	24	4	15
515		5		12	
530		15		6	
545		15		6	
600		24	59	10	34
615		27		19	
630		47		22	
645		46		21	
700		72	192	36	98
715		79		50	
730		108		75	
745		141		76	
800		195	523	93	294
815		188		110	
830		210		102	
845	1,175	162	755	115	420
900		115	675	123	450 *
915		100		98	
930		67		90	
945		86		108	
1000		119	372	109	405
1015		119		92	
1030		76		99	
1045		97		95	
1100		87	379	100	386
1115		99		114	
1130		103		103	
1145		109		117	
1200		115	426	122	456

Time	Peak	Northbound		Southbound	
1200					
1215		95		145	
1230		108		152	
1245		121		125	
1300		93	417	115	537
1315		114		123	
1330		117		122	
1345		104		112	
1400		127	462	117	474
1415		116		129	
1430		110		156	
1445		113		148	
1500		75	414	158	591
1515		95		136	
1530		126		125	
1545		117		150	
1600		133	471	180	591
1615		101	477	257	
1630		121		169	
1645		100		168	
1700		119	441	211	805
1715		113		208	
1730		129		233	
1745		116	477	244	
1800		117	475	255	940
1815	1,417	105	467	218	950
1830		105		202	
1845		107		207	
1900		121	438	184	811
1915		99		191	
1930		89		170	
1945		60		130	
2000		66	314	133	624
2015		65		118	
2030		69		128	
2045		36		86	
2100		46	216	115	447
2115		52		113	
2130		53		113	
2145		34		85	
2200		33	172	69	380
2215		23		54	
2230		15		62	
2245		17		64	
2300		18	73	41	221
2315		10		33	
2330		15		25	
2345		11		19	
2400		7	43	26	103

Directional Volumes	6,649	8,813
24-Hour Volume		15,462

Equipment ID#: 3593

Street Observations — DeShaz Tang & Associates, Inc.

Street: *FM-740/Ridge Road*

Location: *1,000 feet south of IH-30*

City/State: *Rockwall, Texas*

Project-ID#: *95118 - 164*

I. Street Width: *36.3* feet

II. Street Material: *Asphalt*

III. Curbing/Gutters?: *Drainage Ditch*

IV. Number of Lanes: *2 (two) plus one shared left turn lane.*

V. Divided?: *No*

VI. Traffic Control Devices: *Intersection traffic signals at Horizon & IH-30 Access Rd*

VII. Pedestrian Crosswalks?: *No*

VIII. Pedestrian Pushbutton?: *No*

IX. On-street Parking: *No*

X. Posted Speed Limit: *40* mph

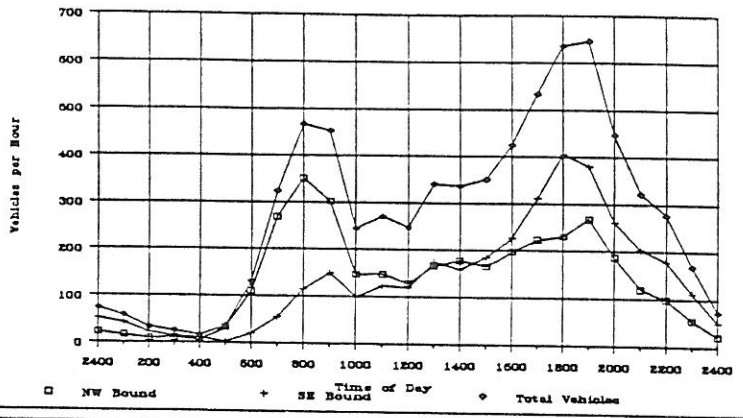
XI. Adjacent Land Uses: *Commercial*

XII. Additional Observations/Comments:

Automated Traffic Count — DeSha, Tang & Associates, Inc.

Street: *Horizon Road*
Location: *310 feet east of FM-740/Ridge Road*
City/State: *Rockwall, Texas*
Project-ID#: *95118 - 165*
Date: *November 1, 1995*
Day of Week: *Wednesday*
Data Source: *DT&A*

24-Hour Volume: *6,876*



Time	Peak	NW Bound		SE Bound	
2400					
15		4		10	
30		5		8	
45		4		16	
100		3	16	8	42
115		2		8	
130		5		7	
145		1		6	
200		2	10	2	23
215		3		3	
230		4		7	
245		0		5	
300		4	11	0	15
315		1		1	
330		1		4	
345		0		4	
400		4	6	2	11
415		6		0	
430		6		2	
445		12		1	
500		10	34	0	3
515		8		7	
530		23		6	
545		32		3	
600		47	110	5	21
615		49		8	
630		68		14	
645		76		18	
700		76	269	16	56
715		70		17	
730		81		19	
745		110		34	
800		91	352	45	115
815		89		41	
830	535	84	374	41	161
845		83		30	
900		47	303	38	150
915		44		26	
930		34		24	
945		28		25	
1000		41	147	23	98
1015		41		34	
1030		27		29	
1045		42		30	
1100		38	148	30	123
1115		28		40	
1130		31		28	
1145		35		26	
1200		34	128	25	119

Time	Peak	NW Bound		SE Bound	
1200					
1215		39		40	
1230		44		46	
1245		43		40	
1300		40	166	49	175
1315		44		39	
1330		39		34	
1345		42		42	
1400		53	178	44	159
1415		43		41	
1430		46		45	
1445		39		43	
1500		38	166	57	186
1515		45		53	
1530		54		47	
1545		56		63	
1600		43	198	64	227
1615		48		95	
1630		68		72	
1645		48		74	
1700		59	223	71	312
1715		56		85	
1730		49		100	
1745		53		119	
1800		73	231	102	406
1815		75		97	
1830		49		108	426
1845	679	76	273	99	
1900		68	268	76	380
1915		55		69	
1930		53		76	
1945		39		64	
2000		40	187	52	261
2015		41		50	
2030		36		58	
2045		24		52	
2100		19	120	43	203
2115		27		48	
2130		32		48	
2145		23		45	
2200		17	99	37	178
2215		23		28	
2230		14		33	
2245		13		31	
2300		6	56	21	113
2315		8		22	
2330		9		13	
2345		5		4	
2400		1	23	12	51
Directional Volumes			3,449		3,427
24-Hour Volume					6,876

Equipment ID#: 3594

Street Observations — DeShaz Tang & Associates, Inc.

Street: *Horizon Road*

Location: *310 feet east of FM-740/Ridge Road*

City/State: *Rockwall, Texas*

Project-ID#: *95118 - 165*

I. Street Width: *25.7* feet

II. Street Material: *Asphalt*

III. Curbing/Gutters?: *Drainage Ditch*

IV. Number of Lanes: *2 (Two)*

V. Divided?: *No*

VI. Traffic Control Devices: *Intersection Traffic Control Signals at FM-740*

VII. Pedestrian Crosswalks?: *None*

VIII. Pedestrian Pushbutton?: *None*

IX. On-street Parking: *No*

X. Posted Speed Limit: *45* mph

XI. Adjacent Land Uses: *Commercial, Agricultural*

XII. Additional Observations/Comments:

Intersection Traffic Movements

DeShazo, Tang & Assoicates, Inc

Location: *Ridge Road / FM-740 & IH-30 WB Service Road*
City/State: *Rockwall, Texas* County: *Rockwall*
Signalization: *Signalized*
Project-ID#: *95089 - E*

Date/Day: *August 18, 1995 / Thursday*
Data Source: *DT&A*
Data Collector(s): *Dewey Bishop*
Comments: *Sunny & Hot*

Time of Count		Northbound on *Ridge Road / FM-740*		Southbound on *Ridge Road / FM-740*			Westbound on *IH-30 Service Road*				Fifteen Minute Subtotals	Peak Hour Totals	Peak H Factor
Begin	End	Left	Thru	Thru	Right		Uturn	Left	Thru	Right			
16:00	16:15	16	190	136	65		17	72	15	8	519		
16:15	16:30	11	158	121	55		8	77	5	7	442		
16:30	16:45	16	176	94	50		9	64	13	7	429		
16:45	17:00	18	189	114	56		11	72	8	8	476	1,866	
17:00	17:15	11	217	122	70		11	90	12	6	539	1,886	
17:15	17:30	16	187	129	49		15	55	13	9	473	1,917	
17:30	17:45	12	229	101	60		17	66	10	5	500	1,988	
17:45	18:00	18	234	127	49		12	77	14	7	538	2,050 *	0.95
18:00	18:15	16	241	126	52		25	63	6	6	535	2,046	
18:15	18:30	20	218	99	52		7	50	15	9	470	2,043	
PM Peak Hour		57	867	479	228		55	288	49	27	2,050		
Total/Direction		---	924	---	707		---	---	419	---			
%Turn		6.2%	93.8%	67.8%	32.2%		13.1%	68.7%	11.7%	6.4%			
Peak Hr Factor		0.71	0.90	0.88	0.81		0.55	0.80	0.82	0.75			

Intersection Traffic Movements

DeShazo, Tang & Assoicates, Inc

Location: *Ridge Road / FM-740 & IH-30 EB Service Road*
City/State: *Rockwall, Texas* County: *Rockwall*
Signalization: *Signalized*
Project-ID#: *95089 - F*

Date/Day: *August 18, 1995 / Thursday*
Data Source: *DT&A*
Data Collector(s): *Buck Woolverton*
Comments: *Sunny & Hot*

Time of Count		Northbound on *Ridge Road / FM-740*		Southbound on *Ridge Road / FM-740*		Eastbound on *IH-30 EB Service Road*					Fifteen Minute Subtotals	Peak Hour Totals	Peak Hr Fac.
Begin	End	2 Thru	1 Right	1 Left	2 Thru	1 UTurn	1> Left	1 Thru	1 Right				
16:00	16:15	89	34	12	208	6	101	26	71		547		
16:15	16:30	57	30	13	198	5	101	34	49		487		
16:30	16:45	91	37	14	158	1	85	20	48		454		
16:45	17:00	100	38	14	186	8	89	31	58		524	2,012	
17:00	17:15	81	29	25	212	16	130	29	75		597	2,062	
17:15	17:30	99	33	27	184	7	88	33	85		556	2,131	
17:30	17:45	93	36	8	167	7	136	28	66		541	2,218	
17:45	18:00	94	31	16	204	11	140	29	76		601	2,295	0.95
18:00	18:15	109	30	19	189	7	132	30	75		591	2,289	
18:15	18:30	86	30	6	149	7	132	27	63		500	2,233	
PM Peak Hour		367	129	76	767	41	494	119	302		2,295		
Total/Direction		---	496	---	843	---	---	956	---				
%Turn			74.0%	26.0%	9.0%	91.0%	4.3%	51.7%	12.4%	31.6%			
Peak Hr Factor			0.84	0.85	0.70	0.90	0.64	0.88	0.88	0.89			

File: C2X3HRS.WK1

Intersection Traffic Movements

DeShazo, Tang & Associates, Inc

Location: *FM-740/Ridge Road & Driveway to Bank/Chili's*
City/State: *Rockwall, Texas* County: *Rockwall*
Signalization: *None*
Project-ID#: *95118 - B*
Date/Day: *October 30, 1995 / Monday*
Data Source: *DT&A*
Data Collector(s): *Charles L. DeShazo*
Conditions: *Cloudy & Dry*

Time of Count		Northbound on FM-740 2U		Southbound on FM-740 2U		Eastbound out of Driveway 2U				Fifteen Minute Subtotals	Peak Hour Totals	Peak Hour Factor
		1	<0	1	1	0>	1	<0				
Begin	End	Thru	Right	Left	Thru	Left		Right				
17:00	17:15	114	2	2	254	1		5		378		
17:15	17:30	102	2	4	341	2		9		460		
17:30	17:45	124	0	3	257	1		3		388		
17:45	18:00	112	3	1	280	5		2		403	1,629 *	88.53%
PM Peak Hour		452	7	10	1,132	9		19		1,629		
Total/Direction		--- 459	---	---	1,142	---	28	---				
%Turn		98.5%	1.5%	0.9%	99.1%	32.1%		67.9%				
Peak Hour Factor		91.1%	58.3%	62.5%	83.0%	45.0%		52.8%				

File: A2X2HRS.WK1

Observations:

Intersection Traffic Movements

DeShazo, Tang & Associates, Inc

Location: *FM-740/Ridge Road & Carlisle Plaza Main Drvwy* (across from Steger Towne)
Date/Day: *November 2, 1995 / Thursday*
City/State: *Rockwall, Texas*
County: *Rockwall*
Data Source: *DT&A*
Signalization: *None*
Data Collector(s): *C. Blaine Rodgers*
Project-ID#: *95118 - C*
Conditions: *Cloudy & Dry*

Time of Count		Northbound on FM-740 2U			Southbound on FM-740 2U			Westbound out of Carlisle Plaza Drvwy 2U			Fifteen Minute Subtotals	Peak Hour Totals	Peak Hour Factor
Begin	End	1> Left	1 Thru		1 Thru	<0 Right		1> Left	1	<1 Right			
17:00	17:15	15	121		182	25		11		34	388		
17:15	17:30	14	102		233	41		8		27	425		
17:30	17:45	14	112		227	25		9		32	419		
17:45	18:00	11	120		226	20		10		25	412	1,644 *	98.09%
PM Peak Hour		54	455		868	111		38		118	1,644		
Total/Direction		---	509	---	---	979	---	---	156	---			
%Turn		10.6%	89.4%		88.7%	11.3%		24.4%		75.6%			
Peak Hour Factor		90.0%	94.0%		93.1%	67.7%		86.4%		86.8%		File: A2X2HRS.WK1	

Observations:

Intersection Traffic Movements

DeShazo, Tang & Associates, Inc

Location: *FM-740/Ridge Road & Carlisle Plaza Driveway*
City/State: *Rockwall, Texas* County: *Rockwall*
Signalization: *None*
Project-ID#: *95118 - A*

Date/Day: *October 30, 1995 / Monday*
Data Source: *DT&A*
Data Collector(s): *C. Blaine Rodgers*
Conditions: *Cloudy & Dry*

Time of Count		Northbound on FM-740 2U		Southbound on FM-740 2U			Westbound out of Carlisle Plaza Drvwy 2U			Fifteen Minute Subtotals	Peak Hour Totals	Peak Hour Factor
Begin	End	1> Left	1 Thru	1 Thru	<0 Right		1> Left	1	<1 Right			
17:00	17:15	5	111	225	39		9		9	398		
17:15	17:30	2	101	268	31		6		10	418		
17:30	17:45	4	98	258	35		8		13	416		
17:45	18:00	6	121	258	37		6		10	438	1,670 *	95.32%
PM Peak Hour		17	431	1,009	142		29		42	1,670		
Total/Direction		---	448 ---	---	1,151 ---		---	71	---			
%Turn		3.8%	96.2%	87.7%	12.3%		40.8%		59.2%			
Peak Hour Factor		70.8%	89.0%	94.1%	95.9%		80.6%		105.0%		File: A2X2HRS.WK1	

Observations:

Intersection Traffic Movements — DeShazo, Tang & Associates, Inc

Location:	*FM-740/Ridge Rd & FM-3097/Horizon Rd*	Date/Day:	*October 5, 1995 / Thursday*
City/State:	*Rockwall, Texas*	County: *Rockwall*	Data Source:	*DT&A*
Signalization:	*Traffic Signals*	Data Collector(s):	*C. Blaine Rodgers*
Project-ID#:	*95056 - A*	Comments:	*Fair & Dry*

Time of Count		Northbound on *FM-740/Ridge Rd* (2U)			Southbound on *FM-740/Ridge Rd* (3U)				Northwest Bound *FM-3097/Horizon Rd* (2U)			Fifteen Minute Subtotals	Peak Hour Totals	Peak Hour Factor
Begin	End	0> Left	1 Thru	<0 Right	1 Left	1 Thru	<0 Right		1 Left	1 Thru	<0 Right			

Note:

* The "west" leg of this intersection is a oneway, one-lane street Northwest Bound.
* At 16:24 a rear-end collision took place in the southbound lanes approximately 150 feet south of the intersection due to someone stopping to make a left turn into a convenience store located on the southeast corner. This affected both southbound and northbound traffic, but police were on the scene within four minuites directing traffic around the disabled vehicles. The accident was cleaned up by 16:48.
* There is no left turn lane for the Northbound traffic, yet there is a left turn signal for that movement.

16:00	16:15	20	82	4	88	142	3		2	9	43	393		
16:15	16:30	28	64	4	90	123	0		6	13	32	360		
16:30	16:45	29	77	5	73	119	5		11	26	74	419		
16:45	17:00	23	94	5	56	106	3		6	7	47	347	1,519	
17:00	17:15	20	105	2	106	150	0		11	12	35	441	1,567	
17:15	17:30	21	100	4	84	140	1		9	19	41	419	1,626	
17:30	17:45	22	83	6	100	138	0		5	13	43	410	1,617	
17:45	18:00	23	85	6	100	139	3		15	14	48	433	1,703 *	98.33%
18:00	18:15	20	73	5	81	142	1		4	19	40	385	1,647	
18:15	18:30	26	78	7	95	177	3		3	15	29	433	1,661	
PM Peak Hour		86	373	18	390	567	4		40	58	167	1,703		
Total/Direction		---	477	---	---	961	---		---	265	---			
%Turn		18.0%	78.2%	3.8%	40.6%	59.0%	0.4%		15.1%	21.9%	63.0%			
Peak Hour Factor		76.8%	88.8%	64.3%	92.0%	80.1%	20.0%		66.7%	55.8%	56.4%			

File: A2X3HRS.WK1

Intersection Traffic Movements

DeShazo, Tang & Associates, Inc

Location: *FM-740/Ridge Rd & FM-3097/Horizon Rd*
City/State: *Rockwall, Texas* County: *Rockwall*
Signalization: *Traffic Signals*
Project-ID#: *95056 - B*

Date/Day: *October 11, 1995 / Wednesday*
Data Source: *DT&A*
Data Collector(s): *C. Blaine Rodgers*
Comments: *Fair & Dry*

Time of Count		Northbound on FM-740/Ridge Rd			Southbound on FM-740/Ridge Rd				Northwest Bound FM-3097/Horizon Rd			Fifteen Minute Subtotals	Peak Hour Totals	Peak Hour Factor
Begin	End	Left	Thru	Right	Left	Thru	Right		Left	Thru	Right			
06:30	06:45	44	29	0	10	18	2		2	37	32	174		
06:45	07:00	43	29	1	7	37	1		1	26	30	175	349	
07:00	07:15	78	38	1	11	34	1		0	54	19	236	585	
07:15	07:30	59	50	4	9	54	2		5	40	38	261	846	
07:30	07:45	61	53	4	16	62	1		4	27	33	261	933	
07:45	08:00	68	70	7	16	70	0		8	33	45	317	1,075	
08:00	08:15	52	85	8	26	65	1		6	33	38	314	1,153	
08:15	08:30	51	83	3	27	54	2		4	29	57	310	1,202	
08:30	08:45	49	87	5	42	62	0		5	25	27	302	1,243 *	98.03%
08:45	09:00	47	65	3	15	65	1		5	21	26	248	1,174	
AM Peak Hour		224	146	6	37	143	6		8	157	119	846		
Total/Direction		---	376	---	---	186	---		---	284	---			
%Turn		59.6%	38.8%	1.6%	19.9%	76.9%	3.2%		2.8%	55.3%	41.9%			
Peak Hour Factor		71.8%	42.0%	18.8%	22.0%	51.1%	75.0%		25.0%	72.7%	52.2%			

Note:

* The "west" leg of this intersection is a oneway, one-lane street Northwest Bound.

* There is no left turn lane for the Northbound traffic, yet there is a left turn signal for that movement.

* One Vehicle was observed going the wrong way on the oneway section of Horizon Road at 08:10. This was not added to the data, but the vehicle did make a southeast bound through movement.

File: A2X31IRS.WK1

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4 01-23-1996
Center For Microcomputers In Transportation

Streets: (E-W) IH 30 WBFR (N-S) Ridge Road
Analyst: GCL File Name: WBRB2.HC9
Area Type: Other 11-1-95 PM Peak
Comment: Base Traffic Volumes (Includes Walmart Study)

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes				1	> 1	1	1	2			3	1
Volumes				336	49	27	65	947			570	228
Lane Width				12.0	12.0	12.0	12.0	12.0			12.0	12.0
RTOR Vols						0			0			0
Lost Time				3.00	3.00	3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4	5	6	7	8
EB	Left					NB Left	*	*	
	Thru					Thru	*	*	
	Right					Right			
	Peds					Peds			
WB	Left	*				SB Left			
	Thru	*				Thru	*		
	Right	*				Right	*		
	Peds					Peds			
NB	Right					EB Right			
SB	Right					WB Right			
Green		26.0A				Green	49.0A	15.0A	
Yellow/AR		0.0				Yellow/AR	0.0	0.0	

Cycle Length: 90 secs Phase combination order: #1 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	452	1770	0.453	0.256	18.7	C	18.5	C
	LT	459	1796	0.438	0.256	18.6	C		
	R	405	1583	0.069	0.256	16.4	C		
NB	L	535	1770	0.127	0.333	4.3	A	4.3	A
	T	2525	3725	0.415	0.678	4.3	A		
SB	T	2856	5588	0.231	0.511	7.9	B	8.0	B
	R	809	1583	0.297	0.511	8.3	B		

Intersection Delay = 8.2 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.425

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4 01-23-1996
Center For Microcomputers In Transportation

Streets: (E-W) IH 30 WBFR (N-S) Ridge Road
Analyst: GCL File Name: WBRBD.HC9
Area Type: Other 11-1-95 PM Peak
Comment: Base Plus Development Traffic Volumes

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes				1	> 1	1	1	2			3	1
Volumes				514	49	27	123	1410			1044	228
Lane Width				12.0	12.0	12.0	12.0	12.0			12.0	12.0
RTOR Vols						0			0			0
Lost Time				3.00	3.00	3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	*	*	
Thru					Thru	*	*	
Right					Right			
Peds					Peds			
WB Left		*			SB Left			
Thru		*			Thru	*		
Right		*			Right	*		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		26.0A			Green	49.0A	15.0A	
Yellow/AR		0.0			Yellow/AR	0.0	0.0	

Cycle Length: 90 secs Phase combination order: #1 #5 #6

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	452	1770	0.694	0.256	22.7	C	21.6	C
	LT	457	1790	0.610	0.256	20.8	C		
	R	405	1583	0.069	0.256	16.4	C		
NB	L	386	1770	0.334	0.333	12.1	B	6.0	B
	T	2525	3725	0.617	0.678	5.5	B		
SB	T	2856	5588	0.423	0.511	8.9	B	8.8	B
	R	809	1583	0.297	0.511	8.3	B		

Intersection Delay = 9.7 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.758

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4 01-23-1996
Center For Microcomputers In Transportation

Streets: (E-W) IH 30 EBFR (N-S) Ridge Road
Analyst: GCL File Name: EBRB2.HC9
Area Type: Other 11-1-95 PM Peak
Comment: Base Traffic Volumes (Includes Walmart Study)

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	> 1	1					3	1	1	2	
Volumes	510	119	50					502	186	70	906	
Lane Width	12.0	12.0	12.0					12.0	12.0	12.0	12.0	
RTOR Vols			0						0			0
Lost Time	3.00	3.00	3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination		1	2	3	4	5	6	7	8
EB	Left	*							
	Thru	*							
	Right	*							
	Peds								
WB	Left								
	Thru								
	Right								
	Peds								
NB	Right								
SB	Right								
Green		31.0A				46.0A	13.0P		
Yellow/AR		0.0				0.0	0.0		
NB	Left								
	Thru					*			
	Right					*			
	Peds								
SB	Left					*	*		
	Thru					*	*		
	Right								
	Peds								
EB	Right								
WB	Right								

Cycle Length: 90 secs Phase combination order: #1 #5 #6

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	551	1770	0.596	0.311	21.2	C	20.9	C
	LT	562	1806	0.594	0.311	21.2	C		
	R	492	1583	0.108	0.311	16.8	C		
NB	T	2670	5588	0.218	0.478	10.4	B	10.5	B
	R	756	1583	0.259	0.478	10.7	B		
SB	L	516	1770	0.143	0.289	6.5	B	6.7	B
	T	2318	3725	0.432	0.622	6.8	B		

Intersection Delay = 11.8 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.487

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4 01-23-1996
Center For Microcomputers In Transportation

Streets: (E-W) IH 30 EBFR (N-S) Ridge Road
Analyst: GCL File Name: EBRBD.HC9
Area Type: Other 11-1-95 PM Peak
Comment: Base + Development Traffic Volumes

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	> 1	1					3	1	1	2	
Volumes	510	119	100					1023	360	70	1558	
Lane Width	12.0	12.0	12.0					12.0	12.0	12.0	12.0	
RTOR Vols			0						0			0
Lost Time	3.00	3.00	3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	*							
Thru	*							
Right	*							
Peds								
WB Left								
Thru								
Right								
Peds								
NB Right								
SB Right								
Green	31.0A				46.0A	13.0P		
Yellow/AR	0.0				0.0	0.0		

Cycle Length: 90 secs Phase combination order: #1 #5 #6

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	551	1770	0.596	0.311	21.2	C	20.7	C
	LT	562	1806	0.594	0.311	21.2	C		
	R	492	1583	0.213	0.311	17.4	C		
NB	T	2670	5588	0.444	0.478	11.9	B	12.1	B
	R	756	1583	0.501	0.478	12.7	B		
SB	L	339	1770	0.218	0.289	12.2	B	10.1	B
	T	2318	3725	0.743	0.622	10.0	B		

Intersection Delay = 12.8 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.694

<GID01> "BASE"

TEXAS DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION
DIAMOND INTERCHANGE SIGNALIZATION - 145105

PASSER3 PASSER III-90 VER 1.0
OCT 90

```
PPPP    AAA    SSS    SSS   EEEEE  RRRR      IIIIIIIIIIIII
P   P  A   A  S   S  S   S  E      R   R       I   I   I
P   P  A   A  S      S      E      R   R       I   I   I
PPPP   AAAAA   SSS    SSS   EEEE   RRRR        I   I   I
P      A   A      S      S  E      R R         I   I   I
P      A   A  S   S  S   S  E      R  R        I   I   I
P      A   A   SSS    SSS   EEEEE  R   R    IIIIIIIIIIIII
```

* * * * * * * * * * * * GENERAL IDENTIFICATION DATA * * * * * * * * * * * *

FREEWAY NAME - - - IH 30

CITY NAME - - - - - - - - - - - - ROCKWALL

DISTRICT NUMBER - - - - - - - - - - - - - - 02

DATE - - - - - - - - - - - - - - - - - 11/01/95

RUN NUMBER - - - - - - - - - - - - - - - - 01

<GID02>

* * * * * * * * * * ISOLATED INTERCHANGE OPERATION * * * * * * * * * * *

*** PARAMETERS ***

NUMBER OF INTERCHANGES - - - - 1

LOWER CYCLE LIMIT (SEC) - - - - 90

UPPER CYCLE LIMIT (SEC) - - - - 100

CYCLE INCREMENT (SEC) - - - - - 10

*** OPTIONS ***

OPTIMIZE INTERNAL OFFSETS ? - - YES

EVALUATE INTERNAL OFFSETS ? - - NO

<IMD01A>

*** LEFT-SIDE MOVEMENT DATA ***

TRAFFIC MOVEMENT	VOLUME (VPH)	SATURATION FLOW (VPHG)	MINIMUM PHASE (SEC)
ARTERIAL			
RIGHT-TURN	129	1900	-
STRAIGHT-THROUGH	327	3800	10
STRAIGHT-THEN-LEFT	55	1900	-
FRONTAGE ROAD			
RIGHT-TURN	14	1900	-
STRAIGHT-THROUGH	119	719	10
LEFT-THEN-STRAIGHT	510	3081	-
LEFT-THEN-LEFT	0	0	-
INTERIOR			
LEFT-TURN	70	1900	5
STRAIGHT-THROUGH	737	3800	-

<IMD01B>

*** RIGHT-SIDE MOVEMENT DATA ***

TRAFFIC MOVEMENT	VOLUME (VPH)	SATURATION FLOW (VPHG)	MINIMUM PHASE (SEC)
ARTERIAL			
RIGHT-TURN	228	1900	-
STRAIGHT-THROUGH	439	3800	10
STRAIGHT-THEN-LEFT	70	1900	-
FRONTAGE ROAD			
RIGHT-TURN	27	1900	-
STRAIGHT-THROUGH	49	537	10
LEFT-THEN-STRAIGHT	298	3263	-
LEFT-THEN-LEFT	0	0	-
INTERIOR			
LEFT-TURN	55	1900	5
STRAIGHT-THROUGH	837	3800	-

<DOI01>

*** INTERNAL DELAY-OFFSET INFORMATION ***

PHASING	OPTIMIZE?	FORCE?	INTERIOR QUEUE STORAGE	
LEAD-LEAD	Y	-	THROUGH MOVEMENT AT LEFT SIDE (VEH)	16
LAG -LEAD	Y	-	LEFT-TURN MOVEMENT AT LEFT SIDE (VEH)	8
LEAD-LAG	Y	-	THROUGH MOVEMENT AT RIGHT SIDE (VEH)	16
LAG -LAG	Y	-	LEFT-TURN MOVEMENT AT RIGHT SIDE (VEH)	8
TTI -LEAD	Y	-		

PERMITTED LEFT TURNS?		INTERIOR TRAVEL TIMES	
LEFT-SIDE INTERSECTION	YES	LEFT TO RIGHT (SEC) - - - - - - - - - -	10
RIGHT-SIDE INTERSECTION	YES	RIGHT TO LEFT (SEC) - - - - - - - - - -	10

<GSI01>
* * * INTERCHANGE 1 RIDGE ROAD RUN 01 PAGE 4A

*** GENERAL SIGNALIZATION INFORMATION ***

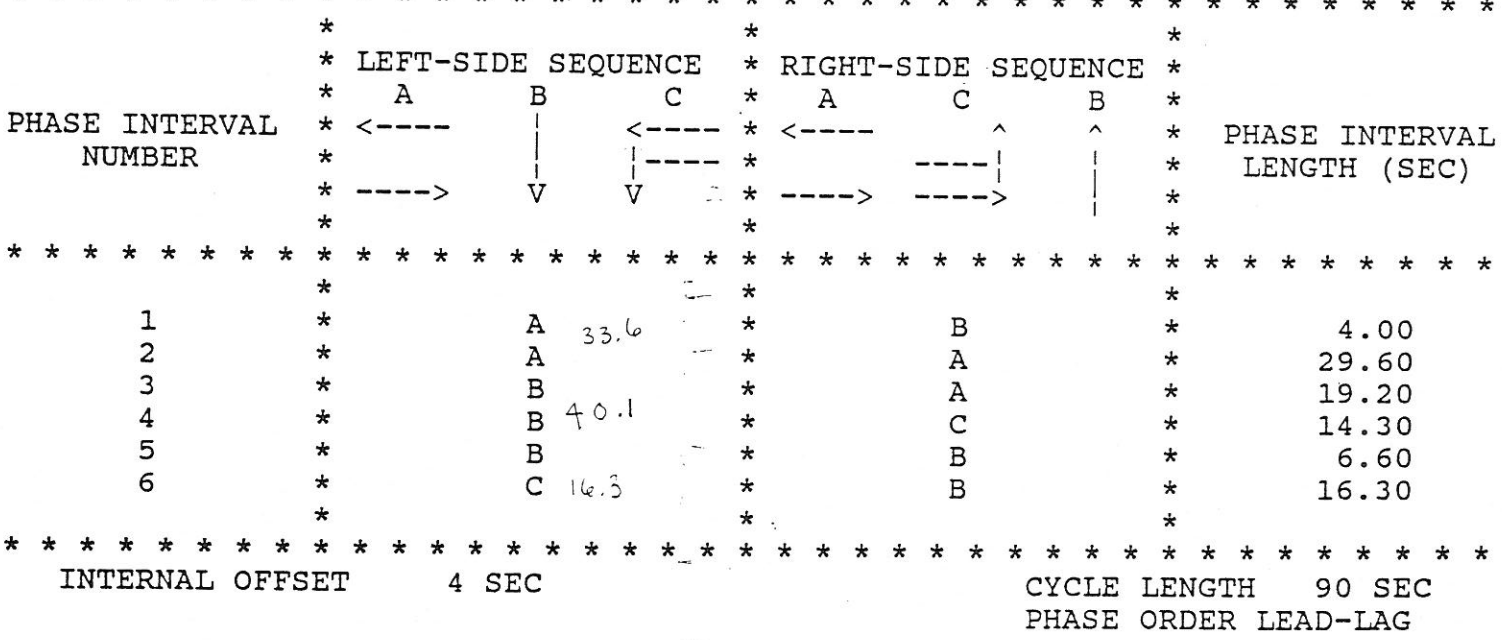
MEASURES OF EFFECTIVENESS	LEFT-SIDE INTERSECTION A	B	C	A+C	RIGHT-SIDE INTERSECTION A	B	C	A+C
PHASE TIME (SEC)	33.6	40.1	16.3	49.9	48.8	26.9	14.3	63.1
V/C RATIO	.26	.41	.27	.38	.24	.36	.25	.34
LEVEL OF SERVICE	A	A	A	A	A	A	A	A
DELAY (SEC/VEH)	22.21	20.08	11.27	6.60	12.93	28.45	5.48	2.98
LEVEL OF SERVICE	C	C	B	B	B	C	A	A
STORAGE RATIO			.08	.26			.14	.17
LEVEL OF SERVICE			B	C			C	C

PHASE ORDER LEAD-LAG TOTAL INTERCHANGE DELAY 14.44 VEH-HRS/HR
INTERNAL OFFSET 4 SEC CYCLE LENGTH 90 SEC

~~HCS → LOS B = 13.3 sec/veh~~
~~EBFR~~
~~WBFR~~

<SPI01>
* * * INTERCHANGE 1 RIDGE ROAD
w/out development w/ddl. timing
EBFR: LOS B/12.0
WBFR: LOS B/8.0
RUN 01 PAGE 4B

*** SIGNAL PHASING INFORMATION ***



INTERNAL OFFSET 4 SEC CYCLE LENGTH 90 SEC
PHASE ORDER LEAD-LAG

<GSI01>
* * * INTERCHANGE 1 RIDGE ROAD

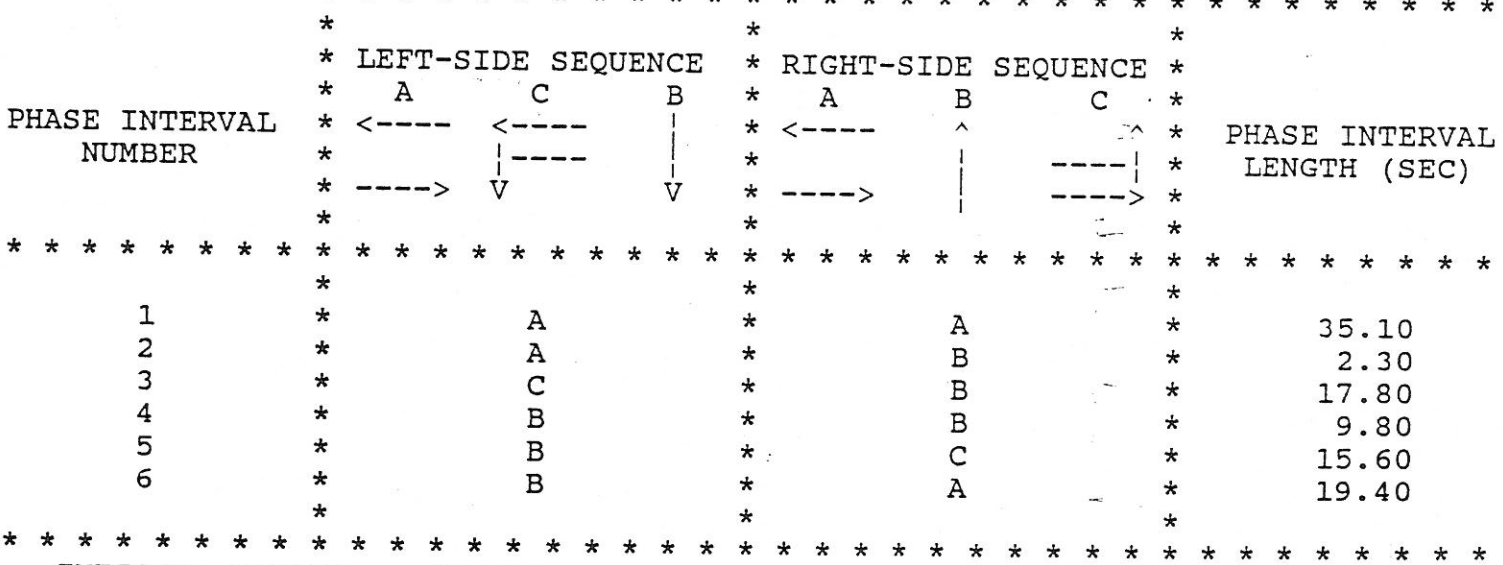
*** GENERAL SIGNALIZATION INFORMATION ***

MEASURES OF EFFECTIVENESS	LEFT-SIDE INTERSECTION A	B	C	A+C	RIGHT-SIDE INTERSECTION A	B	C	A+C
PHASE TIME (SEC)	37.4	44.8	17.8	55.2	54.5	29.9	15.6	70.1
V/C RATIO	.26	.41	.27	.38	.24	.35	.25	.33
LEVEL OF SERVICE	A	A	A	A	A	A	A	A
DELAY (SEC/VEH)	24.30	21.68	14.14	8.03	13.95	31.06	5.03	1.80
LEVEL OF SERVICE	C	C	B	B	B	C	A	A
STORAGE RATIO			.18	.55			.08	.10
LEVEL OF SERVICE			C	E			B	B

PHASE ORDER LAG -LEAD TOTAL INTERCHANGE DELAY 15.57 VEH-HRS/HR
INTERNAL OFFSET 65 SEC CYCLE LENGTH 100 SEC

<SPI01>
* * * INTERCHANGE 1 RIDGE ROAD

*** SIGNAL PHASING INFORMATION ***



INTERNAL OFFSET 65 SEC CYCLE LENGTH 100 SEC
PHASE ORDER LAG -LEAD

<GID01> " Base Plus Development"

TEXAS DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION
DIAMOND INTERCHANGE SIGNALIZATION - 145105

PASSER3 PASSER III-90 VER 1.0 OCT 90

```
PPPP    AAA    SSS    SSS   EEEEE  RRRR      IIIIIIIIIIII
P   P  A   A  S   S  S   S  E      R   R       I   I   I
P   P  A   A  S      S      E      R   R       I   I   I
PPPP   AAAAA   SSS    SSS   EEEE   RRRR        I   I   I
P      A   A      S      S  E      R R         I   I   I
P      A   A  S   S  S   S  E      R  R        I   I   I
P      A   A   SSS    SSS   EEEEE  R   R     IIIIIIIIIIII
```

* * * * * * * * * * * GENERAL IDENTIFICATION DATA * * * * * * * * * * *

FREEWAY NAME - - - IH 30

CITY NAME - - - - - - - - - - - - ROCKWALL

DISTRICT NUMBER - - - - - - - - - - - - - - 00

DATE - - - - - - - - - - - - - - - - 11/01/95

RUN NUMBER - - - - - - - - - - - - - - - - 02

<GID02>

* * * * * * * * * * ISOLATED INTERCHANGE OPERATION * * * * * * * * * * *

*** PARAMETERS ***

NUMBER OF INTERCHANGES - - - - 1

LOWER CYCLE LIMIT (SEC) - - - - 90

UPPER CYCLE LIMIT (SEC) - - - - 100

CYCLE INCREMENT (SEC) - - - - - 10

*** OPTIONS ***

OPTIMIZE INTERNAL OFFSETS ? - - YES

EVALUATE INTERNAL OFFSETS ? - - NO

<IMD01A>
* * * INTERCHANGE 1 RIDGE ROAD

*** LEFT-SIDE MOVEMENT DATA ***

TRAFFIC MOVEMENT	VOLUME (VPH)	SATURATION FLOW (VPHG)	MINIMUM PHASE (SEC)
ARTERIAL			
RIGHT-TURN	251	1900	-
STRAIGHT-THROUGH	649	3800	10
STRAIGHT-THEN-LEFT	95	1900	-
FRONTAGE ROAD			
RIGHT-TURN	56	1900	-
STRAIGHT-THROUGH	119	719	10
LEFT-THEN-STRAIGHT	510	3081	-
LEFT-THEN-LEFT	0	0	-
INTERIOR			
LEFT-TURN	70	1900	5
STRAIGHT-THROUGH	1196	3800	-

<IMD01B>
* * * INTERCHANGE 1 RIDGE ROAD

*** RIGHT-SIDE MOVEMENT DATA ***

TRAFFIC MOVEMENT	VOLUME (VPH)	SATURATION FLOW (VPHG)	MINIMUM PHASE (SEC)
ARTERIAL			
RIGHT-TURN	228	1900	-
STRAIGHT-THROUGH	773	3800	10
STRAIGHT-THEN-LEFT	70	1900	-
FRONTAGE ROAD			
RIGHT-TURN	27	1900	-
STRAIGHT-THROUGH	49	394	10
LEFT-THEN-STRAIGHT	423	3406	-
LEFT-THEN-LEFT	0	0	-
INTERIOR			
LEFT-TURN	95	1900	5
STRAIGHT-THROUGH	1159	3800	-

<DOI01>

*** INTERNAL DELAY-OFFSET INFORMATION ***

PHASING	OPTIMIZE?	FORCE?	INTERIOR QUEUE STORAGE	
LEAD-LEAD	Y	-	THROUGH MOVEMENT AT LEFT SIDE (VEH)	16
LAG -LEAD	Y	-	LEFT-TURN MOVEMENT AT LEFT SIDE (VEH)	8
LEAD-LAG	Y	-	THROUGH MOVEMENT AT RIGHT SIDE (VEH)	16
LAG -LAG	Y	-	LEFT-TURN MOVEMENT AT RIGHT SIDE (VEH)	8
TTI -LEAD	Y	-		

PERMITTED LEFT TURNS?		INTERIOR TRAVEL TIMES	
LEFT-SIDE INTERSECTION	YES	LEFT TO RIGHT (SEC)	10
RIGHT-SIDE INTERSECTION	YES	RIGHT TO LEFT (SEC)	10

<GSI01>
* * * INTERCHANGE 1 RIDGE ROAD

*** GENERAL SIGNALIZATION INFORMATION ***

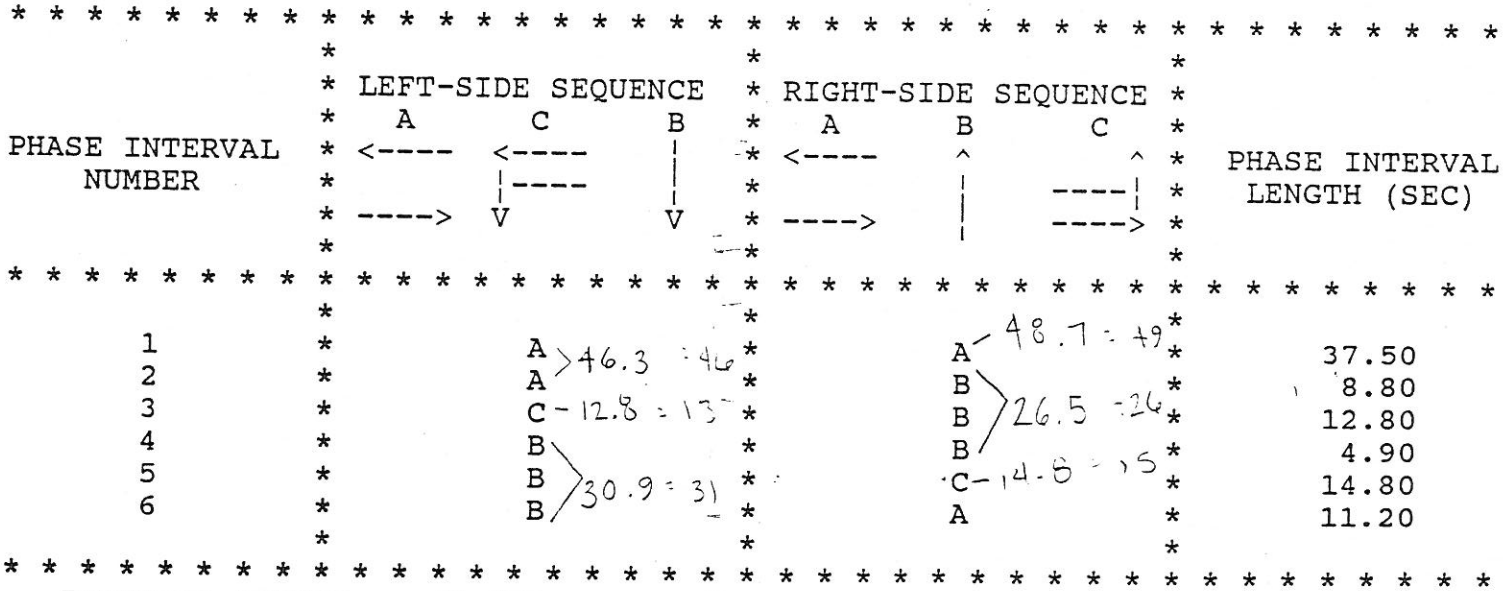
MEASURES OF EFFECTIVENESS	LEFT-SIDE INTERSECTION A	B	C	A+C	RIGHT-SIDE INTERSECTION A	B	C	A+C
PHASE TIME (SEC)	46.3	30.9	12.8	59.1	48.7	26.5	14.8	63.5
V/C RATIO	.36	.55	.38	.51	.41	.50	.42	.46
LEVEL OF SERVICE	A	A	A	A	A	A	A	A
DELAY (SEC/VEH)	15.32	29.54	13.77	4.23	14.42	33.07	7.94	3.28
LEVEL OF SERVICE	B	C	B	A	B	D	B	A
STORAGE RATIO			.17	.33			.14	.27
LEVEL OF SERVICE			C	D			C	C

PHASE ORDER LAG -LEAD TOTAL INTERCHANGE DELAY 20.51 VEH-HRS/HR
INTERNAL OFFSET 64 SEC CYCLE LENGTH 90 SEC

EBFR ⇒ LOS B - 11.9 sec/veh
WBFR ⇒ LOS B/8.8

<SPI01>
* * * INTERCHANGE 1 RIDGE ROAD

*** SIGNAL PHASING INFORMATION ***



INTERNAL OFFSET 64 SEC CYCLE LENGTH 90 SEC
PHASE ORDER LAG -LEAD

<GSI01>
* * * INTERCHANGE 1 RIDGE ROAD

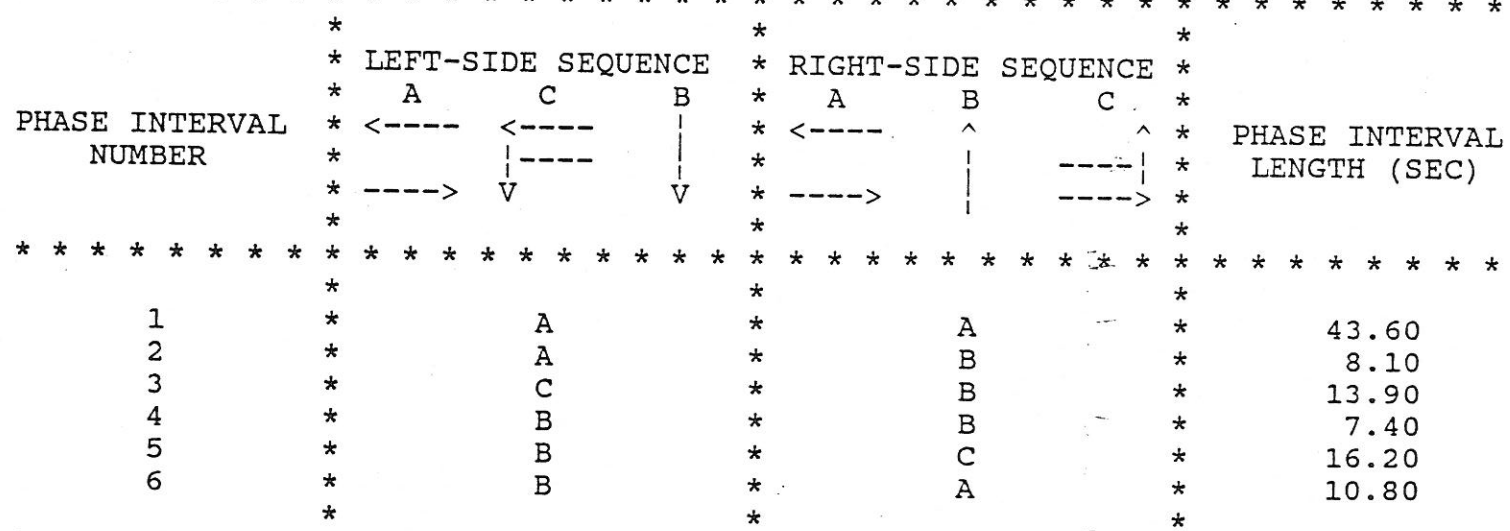
*** GENERAL SIGNALIZATION INFORMATION ***

MEASURES OF EFFECTIVENESS	LEFT-SIDE INTERSECTION A	B	C	A+C	RIGHT-SIDE INTERSECTION A	B	C	A+C
PHASE TIME (SEC)	51.7	34.4	13.9	65.6	54.4	29.4	16.2	70.6
V/C RATIO	.36	.54	.37	.51	.40	.49	.41	.46
LEVEL OF SERVICE	A	A	A	A	A	A	A	A
DELAY (SEC/VEH)	16.56	31.81	13.97	4.42	15.55	35.64	7.77	3.15
LEVEL OF SERVICE	B	C	B	A	B	D	B	A
STORAGE RATIO			.17	.34			.14	.26
LEVEL OF SERVICE			C	D			C	C

PHASE ORDER LAG -LEAD TOTAL INTERCHANGE DELAY 22.03 VEH-HRS/HR
INTERNAL OFFSET 73 SEC CYCLE LENGTH 100 SEC

<SPI01>
* * * INTERCHANGE 1 RIDGE ROAD

*** SIGNAL PHASING INFORMATION ***



PHASE INTERVAL NUMBER	LEFT-SIDE SEQUENCE	RIGHT-SIDE SEQUENCE	PHASE INTERVAL LENGTH (SEC)
1	A	A	43.60
2	A	B	8.10
3	C	B	13.90
4	B	B	7.40
5	B	C	16.20
6	B	A	10.80

INTERNAL OFFSET 73 SEC CYCLE LENGTH 100 SEC
PHASE ORDER LAG -LEAD

****

File Name RCB.HC0
Streets: (N-S) Ridge Road (E-W) Chili's Driveway
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... GCL
Date of Analysis..... 11/1/95
Other Information..... Base Traffic Volumes

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	3<	0	1	2	0	0	0	0	0>	1<	0
Stop/Yield			N			N						
Volumes		482	7	10	741					9	0	19
PHF		.95	.95	.95	.95					.95	.95	.95
Grade		0			0			0			0	
MC's (%)		0	0	0	0					0	0	0
SU/RV's (%)		0	0	0	0					0	0	0
CV's (%)		0	0	0	0					0	0	0
PCE's		1.1	1.1	1.1	1.1					1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	164	
Potential Capacity: (pcph)	1143	
Movement Capacity: (pcph)	1143	
Prob. of Queue-free State:	0.98	
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	489	
Potential Capacity: (pcph)	937	
Movement Capacity: (pcph)	937	
Prob. of Queue-free State:	0.99	
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	1236	
Potential Capacity: (pcph)	206	
Capacity Adjustment Factor due to Impeding Movements	0.99	
Movement Capacity: (pcph)	203	
Prob. of Queue-free State:	1.00	
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	1236	
Potential Capacity: (pcph)	172	
Major LT, Minor TH Impedance Factor:	0.99	
Adjusted Impedance Factor:	0.99	
Capacity Adjustment Factor due to Impeding Movements	0.99	
Movement Capacity: (pcph)	170	

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
WB	L	10	170	410	9.5	B	9.5
WB	R	22	1143				
SB	L	12	937		3.9	A	0.1

Intersection Delay = 0.2

****

File Name RCBD.HC0
Streets: (N-S) Ridge Road (E-W) Chili's Driveway
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... GCL
Date of Analysis..... 11/1/95
Other Information..... Base Plus Development Traffic Volumes

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	3<	0	0	2	0	0	0	0	0	0	1
Stop/Yield			N			N						
Volumes		462	67		1410							77
PHF		.95	.95		.95							.95
Grade		0			0			0			0	
MC's (%)		0	0		0							0
SU/RV's (%)		0	0		0							0
CV's (%)		0	0		0							0
PCE's		1.1	1.1		1.1							1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	188	
Potential Capacity: (pcph)	1112	
Movement Capacity: (pcph)	1112	
Prob. of Queue-free State:	0.92	

****

Intersection Performance Summary

Movement	FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
WB R	89	1112		3.5	A	

Intersection Delay = 0.1

****

File Name RNDBD.HC0
Streets: (N-S) Ridge Road (E-W) North Driveway
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... GCL
Date of Analysis..... 11/6/95
Other Information..... Base + Development Traffic Volumes

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2<	0	1	2<	0	0	0	1	0	0	1
Stop/Yield			N			N						
Volumes	17	1120	55	256	1260	142			42			250
PHF	.95	.95	.95	.95	.95	.95			.95			.95
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0			0			0
SU/RV's (%)	0	0	0	0	0	0			0			0
CV's (%)	0	0	0	0	0	0			0			0
PCE's	1.1	1.1	1	1	1.1	1			1			1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	588	701
Potential Capacity: (pcph)	697	611
Movement Capacity: (pcph)	697	611
Prob. of Queue-free State:	0.62	0.93

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	1175	1402
Potential Capacity: (pcph)	401	303
Movement Capacity: (pcph)	401	303
Prob. of Queue-free State:	0.33	0.93

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	R	44	611		6.3	B	
WB	R	263	697		8.3	B	
NB	L	20	303		12.7	C	0.2
SB	L	269	401		26.7	D	4.1

Intersection Delay = 3.0

****

File Name RNDE.HC0
Streets: (N-S) Ridge Road (E-W) Carlisle Plaza North
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... GCL
Date of Analysis..... 11/7/95
Other Information..... Existing Traffic Volumes - PM Peak Hour

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1<	0	0>	1<	0	0	0	0
Stop/Yield			N			N						
Volumes	17	431			1009	142	29	0	42			
PHF	.95	.95			.95	.95	.95	.95	.95			
Grade		0			0			0			0	
MC's (%)	0	0			0	0	0	0	0			
SU/RV's (%)	0	0			0	0	0	0	0			
CV's (%)	0	0			0	0	0	0	0			
PCE's	1.1	1.1			1.1	1.1	1.1	1.1	1.1			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		1080
Potential Capacity: (pcph)		393
Movement Capacity: (pcph)		393
Prob. of Queue-free State:		0.88
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)		1151
Potential Capacity: (pcph)		485
Movement Capacity: (pcph)		485
Prob. of Queue-free State:		0.96
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)		1528
Potential Capacity: (pcph)		172
Capacity Adjustment Factor due to Impeding Movements		0.96
Movement Capacity: (pcph)		165
Prob. of Queue-free State:		1.00
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)		1528
Potential Capacity: (pcph)		138
Major LT, Minor TH Impedance Factor:		0.96
Adjusted Impedance Factor:		0.96
Capacity Adjustment Factor due to Impeding Movements		0.96
Movement Capacity: (pcph)		132

****

Intersection Performance Summary

Movement	FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB L	34	132 >		>	>	
			216	26.8	D	26.8
EB R	48	393 >		>	>	
NB L	20	485		7.7	B	0.3

Intersection Delay = 1.2

****

File Name RSTB.HC0
Streets: (N-S) Ridge Road (E-W) Carlisle Plaza Drive
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... GCL
Date of Analysis..... 11/6/95
Other Information..... Existing Traffic w/ Walmart & Widened Ridge Road

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2<	0	0>	1<	0	0	0	0
Stop/Yield			N			N						
Volumes	71	630			763	111	53	0	118			
PHF	.95	.95			.95	.95	.95	.95	.95			
Grade		0			0			0			0	
MC's (%)	0	0			0	0	0	0	0			
SU/RV's (%)	0	0			0	0	0	0	0			
CV's (%)	0	0			0	0	0	0	0			
PCE's	1.1	1.1			1.1	1.1	1.1	1.1	1.1			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		437
Potential Capacity: (pcph)		832
Movement Capacity: (pcph)		832
Prob. of Queue-free State:		0.84

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		874
Potential Capacity: (pcph)		582
Movement Capacity: (pcph)		582
Prob. of Queue-free State:		0.86

Step 3: TH from Minor Street	WB	EB
Conflicting Flows: (vph)		1520
Potential Capacity: (pcph)		141
Capacity Adjustment Factor due to Impeding Movements		0.86
Movement Capacity: (pcph)		121
Prob. of Queue-free State:		1.00

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		1520
Potential Capacity: (pcph)		113
Major LT, Minor TH Impedance Factor:		0.86
Adjusted Impedance Factor:		0.86
Capacity Adjustment Factor due to Impeding Movements		0.86
Movement Capacity: (pcph)		97

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	62	97	247	66.0	F	66.0
EB	R	136	832				
NB	L	83	582		7.2	B	0.7

Intersection Delay = 6.8

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4 01-23-1996
Center For Microcomputers In Transportation

Streets: (E-W) Steger Towne Drive (N-S) Ridge Road
Analyst: GCL File Name: RSTBD.HC9
Area Type: Other 11-1-95 PM Peak
Comment: Base + Development Traffic Volumes

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes		> 1	1		> 1	1	1	2	1	1	2	<
Volumes	62	9	118	381	9	389	71	738	224	633	820	111
Lane Width		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vols			22			78			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4	5	6	7	8
EB	Left	*							
	Thru	*							
	Right	*							
	Peds								
WB	Left		*						
	Thru		*						
	Right		*						
	Peds								
NB	Right								
SB	Right								
Green		9.0A	21.0A						
Yellow/AR		0.0	3.0						

		5	6	7	8
NB	Left	*		*	
	Thru			*	
	Right			*	
	Peds				
SB	Left	*	*	*	
	Thru		*	*	
	Right		*	*	
	Peds				
EB	Right				
WB	Right				
Green		5.0A	29.0P	20.0A	
Yellow/AR		0.0	0.0	3.0	

Cycle Length: 90 secs Phase combination order: #1 #2 #5 #6 #7

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	LT	119	1784	0.622	0.067	37.6	D	65.4	F
	R	106	1583	0.957	0.067	85.8	F		
WB	LT	414	1776	0.989	0.233	57.5	E	50.0	E
	R	369	1583	0.885	0.233	40.6	E		
NB	L	135	1770	0.556	0.044	24.5	C	41.8	E
	T	828	3725	0.986	0.222	47.4	E		
	R	352	1583	0.671	0.222	27.7	D		
SB	L	692	1770	0.962	0.722	35.6	D	20.1	C
	TR	1992	3659	0.517	0.544	10.1	B		

Intersection Delay = 34.7 sec/veh Intersection LOS = D
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.990

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4 01-23-1996
Center For Microcomputers In Transportation

Streets: (E-W) Steger Towne Drive (N-S) Ridge Road
Analyst: GCL File Name: RSTBDI.HC9
Area Type: Other 11-1-95 PM Peak
Comment: Base + Development Traffic Volumes

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes		> 1	1		> 1	1	1	2	1	2	2	<
Volumes	62	9	118	381	9	389	71	738	224	633	820	111
Lane Width		12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	*				NB Left *		*	
Thru	*				Thru		*	
Right	*				Right		*	
Peds					Peds			
WB Left		*			SB Left *	*		
Thru		*			Thru	*	*	
Right		*			Right	*	*	
Peds					Peds			
NB Right		*			EB Right *			
SB Right					WB Right *	*		
Green	9.0A	23.0A			Green	6.0A 22.0P	24.0A	
Yellow/AR	0.0	3.0			Yellow/AR	0.0 0.0	3.0	

Cycle Length: 90 secs Phase combination order: #1 #2 #5 #6 #7

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	LT	119	1784	0.622	0.067	37.6	D	42.1	E
	R	158	1583	0.783	0.100	44.8	E		
WB	LT	454	1776	0.903	0.256	39.6	D	24.3	C
	R	897	1583	0.456	0.567	8.9	B		
NB	L	152	1770	0.493	0.067	19.6	C	23.1	C
	T	993	3725	0.821	0.267	27.5	D		
	R	827	1583	0.285	0.522	9.2	B		
SB	L	983	3539	0.698	0.278	23.7	C	16.5	C
	TR	1870	3659	0.550	0.511	11.6	B		

Intersection Delay = 21.4 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.791

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4 01-23-1996
Center For Microcomputers In Transportation

Streets: (E-W) Horizon Road (N-S) Ridge Road
Analyst: GCL File Name: RHB.HC9
Area Type: Other 11-1-95 PM Peak
Comment: Base Traffic Volumes

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	2	<	1	1	1	1	2	<
Volumes	1	117	170	40	58	167	86	533	18	273	557	3
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	*				NB Left	*	*	
Thru	*				Thru		*	
Right	*				Right		*	
Peds					Peds			
WB Left	*				SB Left	*	*	*
Thru	*				Thru		*	*
Right	*				Right		*	*
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	25.0A				Green	5.0A	16.0P	44.0A
Yellow/AR	0.0				Yellow/AR	0.0	0.0	0.0

Cycle Length: 90 secs Phase combination order: #1 #5 #6 #7

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	220	902	0.005	0.244	19.5	C	22.0	C
	T	455	1863	0.270	0.244	21.0	C		
	R	387	1583	0.463	0.244	22.7	C		
WB	L	274	1121	0.153	0.244	20.3	C	21.1	C
	TR	809	3310	0.308	0.244	21.2	C		
NB	L	278	1770	0.327	0.044	10.2	B	14.9	B
	T	849	1863	0.661	0.456	15.9	C		
	R	721	1583	0.026	0.456	10.3	B		
SB	L	437	1770	0.657	0.433	17.6	C	9.4	B
	TR	2358	3723	0.262	0.633	5.5	B		

Intersection Delay = 14.4 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.640

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4 01-23-1996
Center For Microcomputers In Transportation

Streets: (E-W) Horizon Road (N-S) Ridge Road
Analyst: GCL File Name: RHBD.HC9
Area Type: Other 11-1-95 PM Peak
Comment: Base +Development Traffic Volumes

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	2	<	1	1	1	1	2	<
Volumes	37	141	170	156	81	191	86	805	42	296	731	38
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4	5	6	7	8
EB	Left	*							
	Thru	*							
	Right	*							
	Peds								
WB	Left	*							
	Thru	*							
	Right	*							
	Peds								
NB	Right								
SB	Right								
Green		22.0A				5.0A	18.0P	45.0A	
Yellow/AR		0.0				0.0	0.0	0.0	
NB	Left					*		*	
	Thru							*	
	Right							*	
	Peds								
SB	Left					*	*	*	
	Thru						*	*	
	Right						*	*	
	Peds								
EB	Right								
WB	Right								

Cycle Length: 90 secs Phase combination order: #1 #5 #6 #7

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	157	743	0.249	0.211	22.6	C	24.3	C
	T	393	1863	0.376	0.211	23.4	C		
	R	334	1583	0.536	0.211	25.3	D		
WB	L	202	955	0.813	0.211	40.4	E	29.6	D
	TR	704	3333	0.426	0.211	23.7	C		
NB	L	183	1770	0.497	0.044	11.3	B	32.5	D
	T	869	1863	0.974	0.467	36.0	D		
	R	739	1583	0.060	0.467	10.0	B		
SB	L	476	1770	0.655	0.478	19.4	C	8.9	B
	TR	2465	3698	0.344	0.667	5.0	A		

Intersection Delay = 21.8 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.892

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File Name HSDBD.HC0
Streets: (N-S) South Driveway (E-W) Horizon Road
Major Street Direction.... EW
Length of Time Analyzed... 60 (min)
Analyst..... GCL
Date of Analysis..... 11/7/95
Other Information..... Base + Development PM Peak Hour

Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	1	0	0	1<	0	0	0	0	0>	1<	0
Stop/Yield			N			N						
Volumes	48	431			289	95				92	0	139
PHF	.95	.95			.95	.95				.95	.95	.95
Grade		0			0			0			0	
MC's (%)	0	0			0	0				0	0	0
SU/RV's (%)	0	0			0	0				0	0	0
CV's (%)	0	0			0	0				0	0	0
PCE's	1.1	1.1			1.1	1.1				1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		336
Potential Capacity: (pcph)		936
Movement Capacity: (pcph)		936
Prob. of Queue-free State:		0.83

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		384
Potential Capacity: (pcph)		1125
Movement Capacity: (pcph)		1125
Prob. of Queue-free State:		0.95
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-free State:		0.93

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)		816
Potential Capacity: (pcph)		407
Capacity Adjustment Factor due to Impeding Movements		0.93
Movement Capacity: (pcph)		378
Prob. of Queue-free State:		1.00

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)		816
Potential Capacity: (pcph)		357
Major LT, Minor TH Impedance Factor:		0.93
Adjusted Impedance Factor:		0.93
Capacity Adjustment Factor due to Impeding Movements		0.93
Movement Capacity: (pcph)		332

Intersection Performance Summary

Movement	FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
SB L	107	332	542	13.1	C	13.1
SB R	161	936				
EB L	56	1125		3.4	A	0.3

Intersection Delay = 2.9

PARAGON PROJECT RESOURCES, INC.
ENGINEERING AND MANAGEMENT CONSULTANTS

May 14, 1996

Mr. Tony R. Tramel, P.E.
DeShazo Tang & Associates
Dallas, TX 75202

Via Fax: 741.1937

Dear Tony:

There is no issue with the proposed zoning or platting for Steger Towne crossing, nor do I have any problems with your projected traffic volumes, etc. My personal problem is with the number of drives on the primary arterial through that area.

Your understanding of City guidance on driveway spacing is not complete. An extract of the Commercial District section of the Rockwall Zoning Ordinance is attached for your future use. The standard is 1 drive per 200 feet of street frontage *per site* for arterial streets, or as approved by the City Council. If a "site" is an outparcel, the concept plan is in compliance. If a "site" is the shopping center, the plan requires City Council approval.

As you know, neither PARAGON nor I are traffic engineers, and our reference library is not as extensive as yours. My opinions expressed at the work session were based on my understanding of the Zoning Ordinance and the brief guidance provided in the AASHTO green book (an extract attached). As you know, most of the AASHTO discussion is very general, and Figure II-29 is the only numerical data I found (and I gather from the information you provided, even its conclusions are in dispute). If we believe Figure II-29, then additional drives cause additional accidents. The density of proposed and existing drives onto FM 740 from Steger Towne Crossing and the bank would amount to 28 intersections per kilometer (if it were extended for a kilometer), which I think we would all agree is excessive. For these reasons I asked you to relook your previous recommendations.

Bill Crolley tells me that the concept plan has been previously approved by the Planning and Zoning Commission and the City Council. In that case, the appropriate thing for me to do is abstain on both the Steger Towne and the Boston Market agenda items.

Sincerely,

G. William Quinby, P.E.
Planning and Zoning Commissioner

cc: Bill Crolley, Via Fax 771-7727

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Dallas, Texas 75247-4949
Phone: 214-634-7060
Fax: 214-634-0097

Some degree of access control or access management should be included in the development of any street or highway, particularly a new facility where the likelihood of commercial development exists. The type of street or highway to be built should be coordinated with the local land use plan to ensure that the desired control of access can be maintained through local zoning ordinances or subdivision regulations. The control of access may range from minimum driveway regulations to full control. Thus the extent and degree of access control

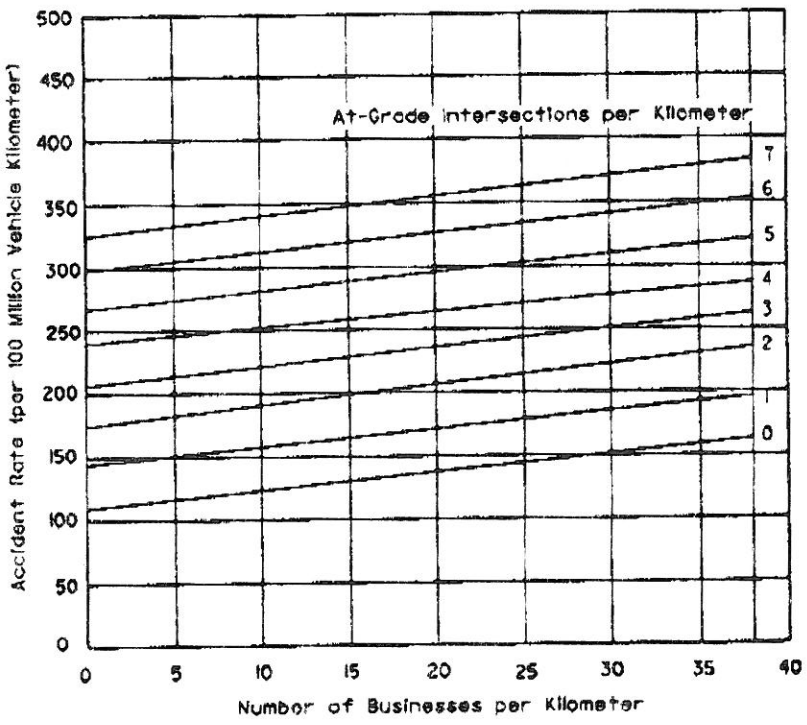

Figure II-29. Accident rate on 4-lane divided non-interstate highways by number of at-grade intersections per kilometer and number of businesses per kilometer.