

BOARD OF ADJUSTMENT, PANEL A
TUESDAY, APRIL 19, 2011
AGENDA

BRIEFING	5/E/S	11:00 A.M.
LUNCH		
PUBLIC HEARING	COUNCIL CHAMBERS	1:00 P.M.

Donnie Moore, Chief Planner
Steve Long, Board Administrator

MISCELLANEOUS ITEM

Approval of the Tuesday, March 15, 2011 Board of Adjustment Public Hearing Minutes	M1
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UNCONTESTED CASES

BDA 101-031	5455 Rancho Lane REQUEST: Application of Maria Cervantes for a special exception to the fence height regulations	1
BDA 101-035	4512 W. Davis Street REQUEST: Application of Jonathan Vinson for a variance to the off-street parking regulations	2
BDA 101-036	13330 Preston Road REQUEST: Application of Tommy Mann, Winstead, PC, for a special exception to the off-street stacking space regulations	3

EXECUTIVE SESSION NOTICE

The Commission/Board may hold a closed executive session regarding any item on this agenda when:

1. seeking the advice of its attorney about pending or contemplated litigation, settlement offers, or any matter in which the duty of the attorney to the Commission/Board under the Texas Disciplinary Rules of Professional Conduct of the State Bar of Texas clearly conflicts with the Texas Open Meetings Act. [Tex. Govt. Code §551.071]
2. deliberating the purchase, exchange, lease, or value of real property if deliberation in an open meeting would have a detrimental effect on the position of the city in negotiations with a third person. [Tex. Govt. Code §551.072]
3. deliberating a negotiated contract for a prospective gift or donation to the city if deliberation in an open meeting would have a detrimental effect on the position of the city in negotiations with a third person. [Tex. Govt. Code §551.073]
4. deliberating the appointment, employment, evaluation, reassignment, duties, discipline, or dismissal of a public officer or employee; or to hear a complaint or charge against an officer or employee unless the officer or employee who is the subject of the deliberation or hearing requests a public hearing. [Tex. Govt. Code §551.074]
5. deliberating the deployment, or specific occasions for implementation, of security personnel or devices.. [Tex. Govt. Code §551.076]
6. discussing or deliberating commercial or financial information that the city has received from a business prospect that the city seeks to have locate, stay, or expand in or near the city and with which the city is conducting economic development negotiations; or deliberating the offer of a financial or other incentive to a business prospect. [Tex. Govt. Code §551.086]

(Rev. 6-24-02)

MISCELLANEOUS ITEM NO. 1

To approve the Board of Adjustment Panel A March 15, 2011 public hearing minutes.

FILE NUMBER: BDA 101-031

BUILDING OFFICIAL'S REPORT:

Application of Maria Cervantes for a special exception to the fence height regulations at 5455 Rancho Lane. This property is more fully described as Lot 42 in City Block 8645 and is zoned R-10(A) which limits the height of a fence in the front yard to 4 feet. The applicant proposes to construct and maintain a 6 foot 4 inch high fence which will require a 2 foot 4 inch special exception.

LOCATION: 5455 Rancho Lane

APPLICANT: Maria Cervantes

REQUEST:

- A special exception to the fence height regulations of 2' 4" is requested in conjunction with primarily maintaining a 6' 4" high open iron fence and on a site currently developed with a single family home. (The special exception is also requested to construct and maintain a 6' 4" high open iron gate across the driveway).

STAFF RECOMMENDATION:

No staff recommendation is made on this or any request for a special exception to the fence height regulations since the basis for this type of appeal is *when in the opinion of the board*, the special exception will not adversely affect neighboring property.

STANDARD FOR A SPECIAL EXCEPTION TO FENCE HEIGHT REGULATIONS:

Section 51A-4.602 of the Dallas Development Code states that the board may grant a special exception to the height requirement for fences when in the opinion of the board, the special exception will not adversely affect neighboring property.

GENERAL FACTS:

- The Dallas Development Code states that a fence may not exceed 4' above grade when located in the required front yard in all residential districts except multifamily districts.

The applicant submitted a revised site plan/partial elevation document (see Attachment A) indicating a fence/gate proposal in the site's front yard setback that would reach a maximum height of 6' 4".

- The following additional information was gleaned from the submitted site plan:
 - The proposal is shown to be approximately 160' in length parallel to the street.
 - The fence is shown to be located approximately 2' from the property line and approximately 13' from the pavement line.
 - The proposed vehicular gate is shown to be located approximately 9' from the property line and approximately 20' from the pavement line.
- The fence is located on the site where two single family homes front it.
- The Board Administrator conducted a field visit of the site and surrounding area along Rancho Drive (generally 500 feet east and west of the site) and noted no other fence that appeared to be located in a front yard setback and higher than 4' in height.
- On April 5, 2011, the applicant submitted a number of loose color photographs of fences in the area (with features labeled on the back of each photo) that will be available for review at the April 19th briefing/hearing.
- On April 8, 2011, the applicant submitted a petition signed by 16 neighbors/owners who support the application (see Attachment B).

BACKGROUND INFORMATION:

Zoning:

Site: R-10(A) (Single family district 10,000 square feet)
North: R-10(A) (Single family district 10,000 square feet)
South: R-10(A) (Single family district 10,000 square feet)
East: R-10(A) (Single family district 10,000 square feet)
West: R-10(A) (Single family district 10,000 square feet)

Land Use:

The subject site is developed with a single family home. The areas to the north, south, east, and west appear to be developed with single family uses.

Timeline:

February 14, 2011: The applicant submitted an "Application/Appeal to the Board of Adjustment" and related documents which have been included as part of this case report.

March 17, 2011: The Board of Adjustment Secretary randomly assigned this case to Board of Adjustment Panel A.

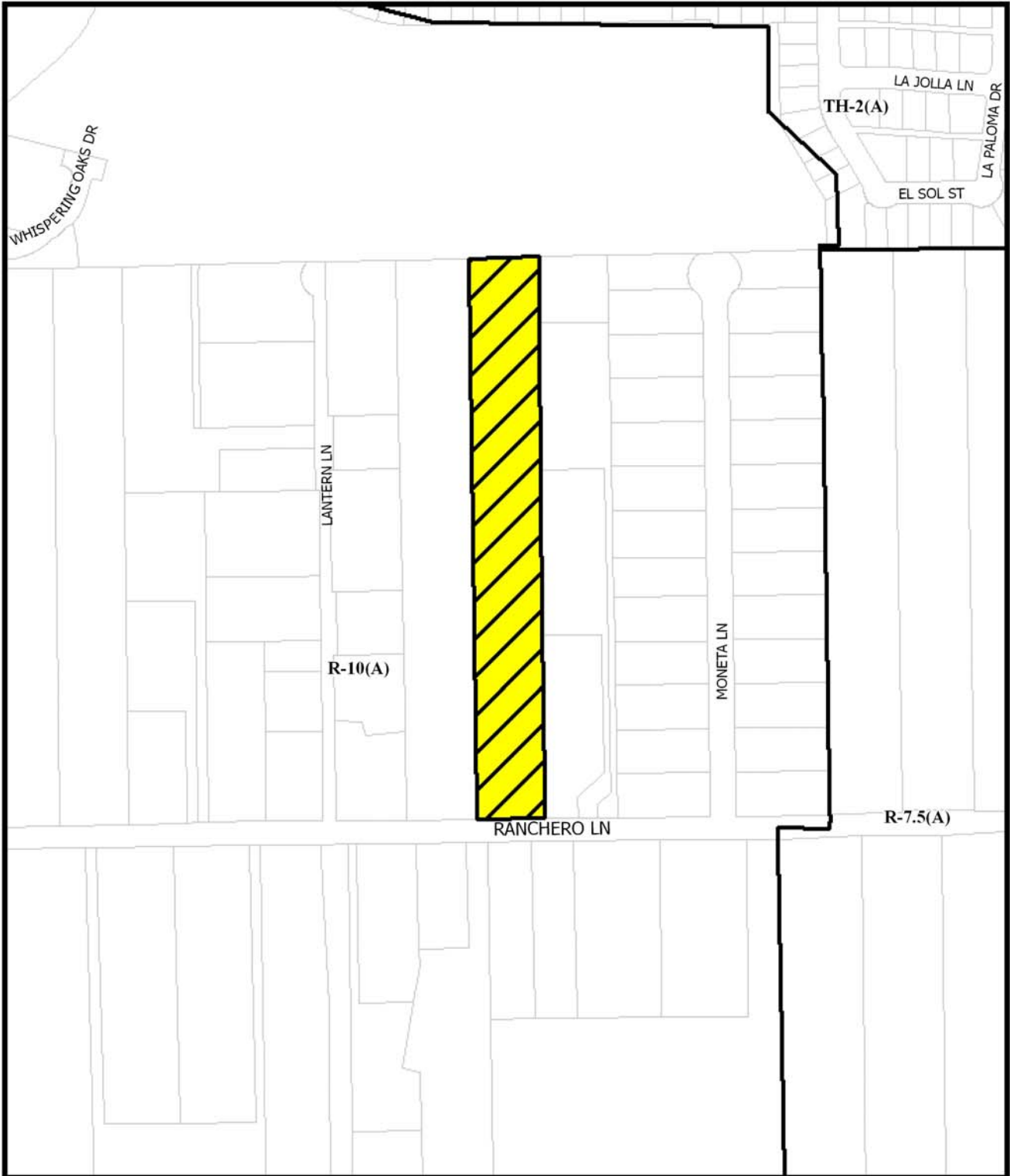
- March 17, 2011: The Board Administrator emailed the applicant the following information:
- an attachment that provided the public hearing date and panel that will consider the application; the April 4th deadline to submit additional evidence for staff to factor into their analysis; and the April 8th deadline to submit additional evidence to be incorporated into the Board's docket materials;
 - the criteria/standard that the board will use in their decision to approve or deny the request; and
 - the Board of Adjustment Working Rules of Procedure pertaining to documentary evidence.
- April 5, 2011: The applicant submitted a number of loose color photographs of fences in the area (with features labeled on the back of each photo) that will be available for review at the April 19th briefing/hearing.
- April 5, 2011: The Board of Adjustment staff review team meeting was held regarding this request and the others scheduled for April public hearings. Review team members in attendance included: the Sustainable Development and Construction Department Assistant Director, the Board Administrator, the Building Inspection Senior Plans Examiner/Development Code Specialist, the Sustainable Development and Construction Department Project Engineer, and the Assistant City Attorney to the Board.
- April 7, 2011: The Sustainable Development Department Project Engineer submitted a review comment sheet marked "Has no objections if certain conditions are met" with the following comments: "Comply with all C.O.D visibility requirements." (Note the no item is represented on the submitted site plan as being located in a 20' visibility triangle).
- April 8, 2011: The applicant forwarded additional information beyond what was submitted with the original application (see Attachment B).

STAFF ANALYSIS:

- The primary focus of this request is maintaining a 6' 4" high open iron fence and gate on a site currently developed with a single family home. (The applicant is also requesting a special exception to construct and maintain a 6' 4" high open iron vehicular gate across the existing driveway into the site from Rancho Lane).
- A revised site plan/partial elevation has been submitted indicating a fence/gate proposal that reaches a maximum height of 6' 4". The site plan

indicates that the proposal is about 160' in length parallel to the street, with the fence located approximately 2' from the property line or about 13' from the pavement line, and the proposed gate to be located approximately 9' from the front property line or approximately 20' from the pavement line.

- The fence is located on the site where two single family homes front it.
- The Board Administrator conducted a field visit of the site and surrounding area along Rancho Drive (generally 500 feet east and west of the site) and noted no other fence that appeared to be located in a front yard setback and higher than 4' in height.
- As of April 11, 2011, a petition signed by 16 neighbors/owners who support the request had been submitted to staff and no letters had been submitted in opposition.
- The applicant has the burden of proof in establishing that the special exception to the fence height regulations (whereby the proposal that is and/or would reach 6' 4" in height) will not adversely affect neighboring property.
- Granting this special exception of 2' 4" with a condition imposed that the applicant complies with the submitted revised site plan/partial elevation would assure that the proposal would be maintained and/or completed and maintained in the location and of the height and material as shown on this document.

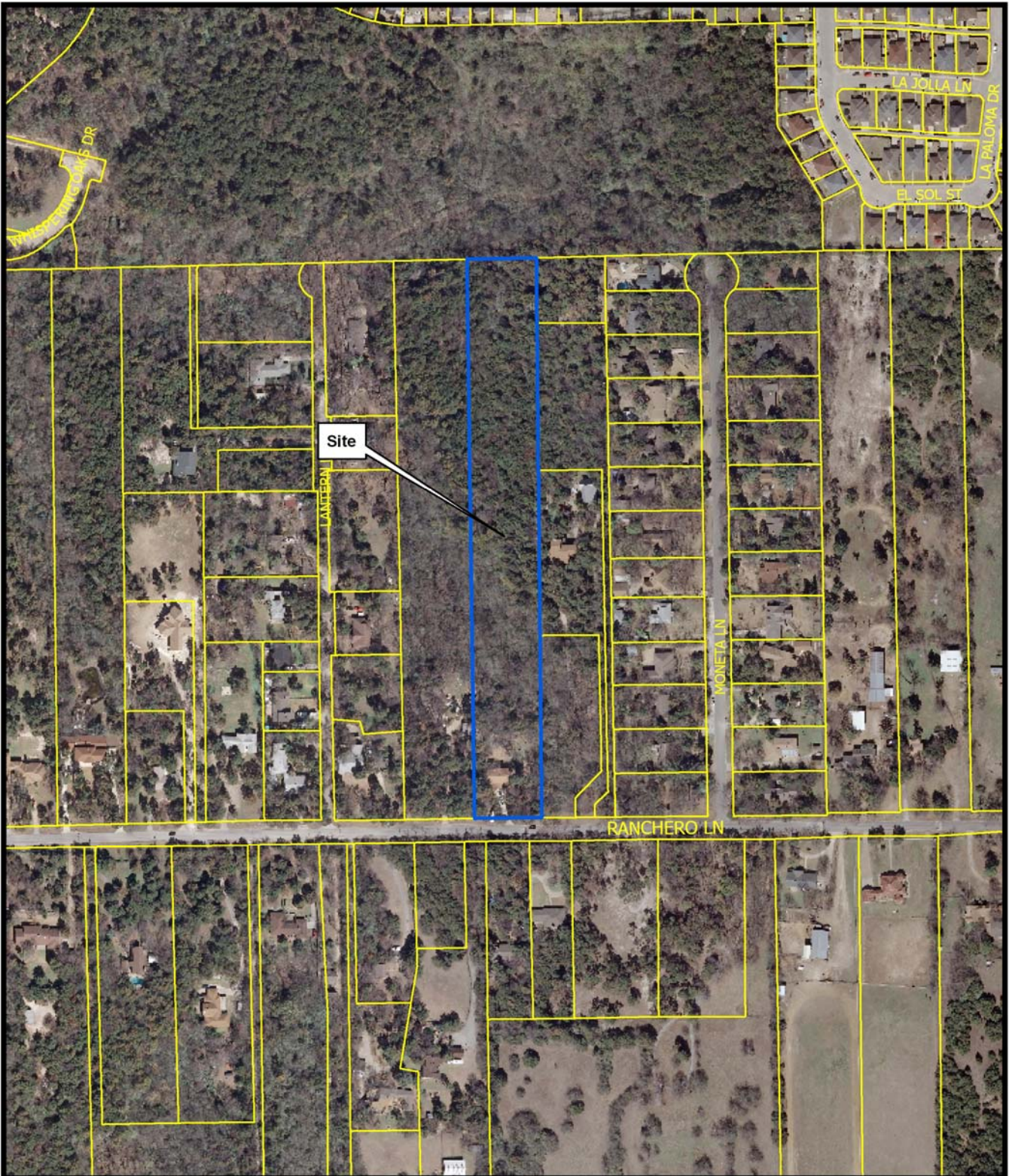



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ZONING MAP

Map no: O-4
 Case no: BDA101-031

DATE: April 01, 2011



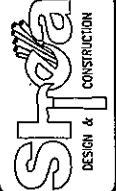
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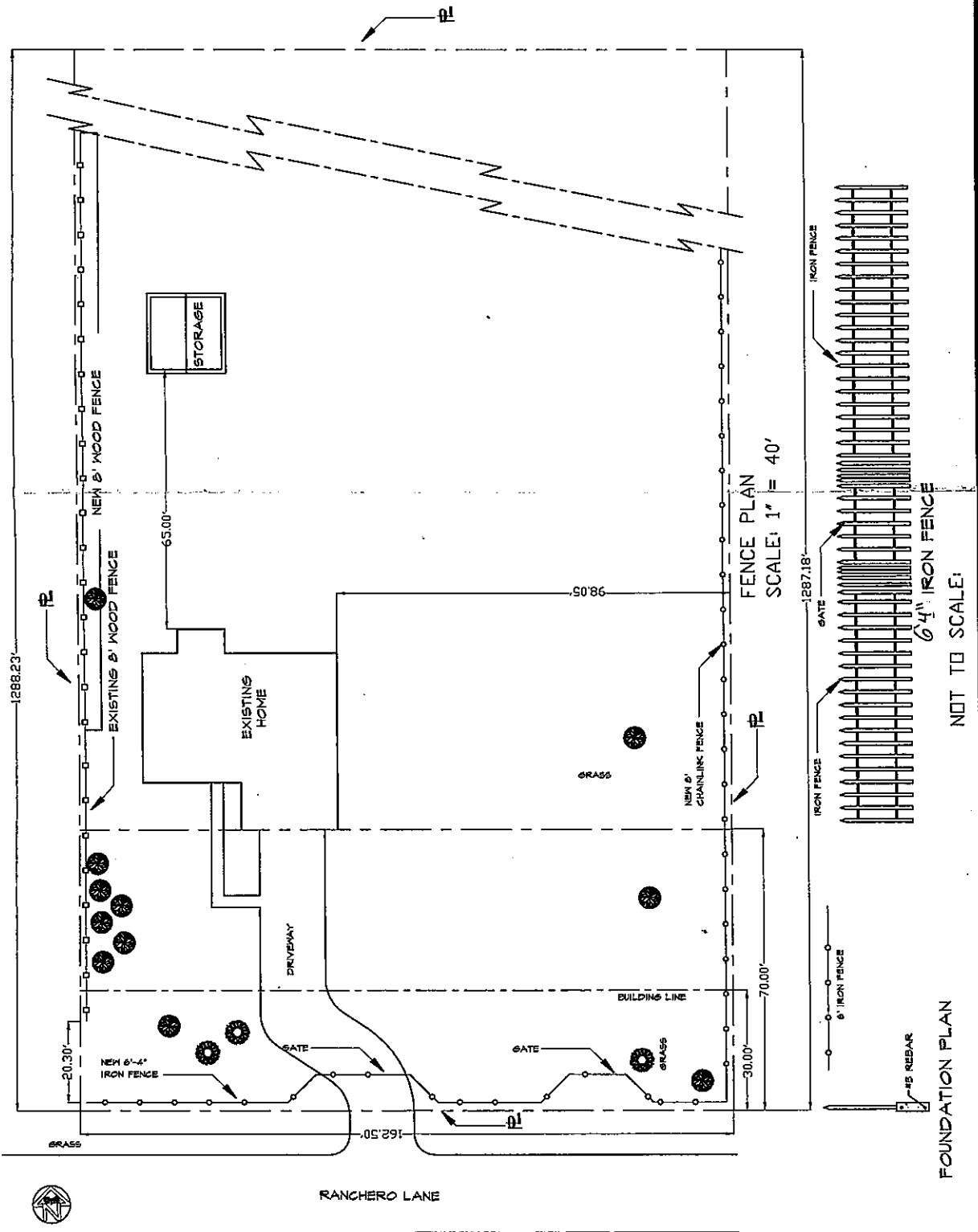
AERIAL MAP

Map no: O-4

Case no: BDA101-031

DATE: April 01, 2011

	SHEA DESIGN & CONSTRUCTION 797 S. RL THOMSON FHWY DALLAS, TEXAS 75208 CELL (214) 616-7067 FAX (214) 946-1166	JOB NO. 4455RANCHO101 DRAWN BY: L.O.J. DATE: _____ SCALE: _____	PROJECT: CERVANTES FAMILY 5455 RANCHERO LANE DALLAS, TEXAS 75236 LOT: 42 BLK: 8045	A1 OF _____	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 5%;">REV.</th> <th style="width: 10%;">DATE</th> </tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>	REV.	DATE													THIS DRAWING IS THE PROPERTY OF SHEA DESIGN & CONSTRUCTION. NO PART OF THIS DRAWING IS TO BE REPRODUCED OR USED IN ANY MANNER WITHOUT THE EXPRESSED WRITTEN PERMISSION OF SHEA DESIGN & CONSTRUCTION.
REV.	DATE																			

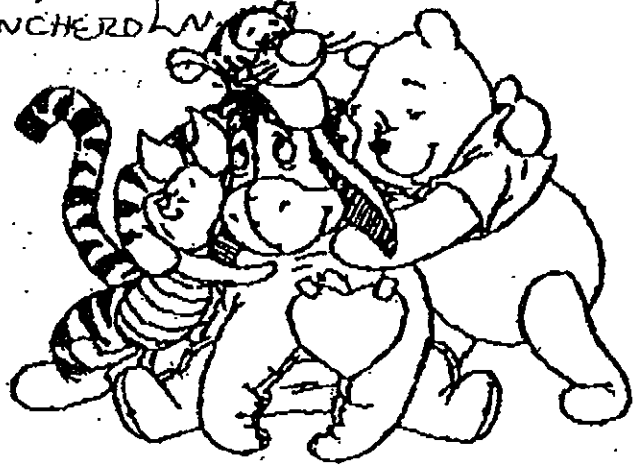


FOUNDATION PLAN
 NOT TO SCALE:

BDA
101-031
Attach B
P51

To: Mr. Long Steve FAX: 214 6704210

From: MR. & MRS. CERVANTES
5455 RANCHERD LN
DALLAS



Message: THESE ARE MY
NEIGHBORS Signatures
supporting My request
of Keeping My fence
Height as it is Now.

Please Let me know if you have

any Question on this matter
Thank you

214 679 8463



City of Dallas

APPLICATION/APPEAL TO THE BOARD OF ADJUSTMENT

Case No.: BDA 101-031

Data Relative to Subject Property:

Date: 2-14-11

Location address: 5455 Ranchero Ln Zoning District: R-10(A)

Lot No.: 42 Block No.: 8645 Acreage: 5 Census Tract: 165.01

Street Frontage (in Feet): 1) 162.5 2) 3) 4) 5) SW 14

To the Honorable Board of Adjustment:

Owner of Property/or Principal: Jose & Maria Cervantes

Applicant: Maria Cervantes Telephone: 214 679 8463

Mailing Address: 5455 Ranchero Lane Zip Code: 75236

Represented by: Telephone:

Mailing Address: 5455 Ranchero Lane Dallas Zip Code: 75236

Affirm that a request has been made for a Variance, or Special Exception of fence high in the front yard. 2 FT 4 inches

Application is now made to the Honorable Board of Adjustment, in accordance with the provisions of the Dallas Development Code, to grant the described request for the following reason:

To keep the front fence at 6ft as initiated. I was not aware there was a limit in height of fence since several neighbor's fences are 6ft. or higher

Note to Applicant: If the relief requested in this application is granted by the Board of Adjustment, said permit must be applied for within 180 days of the date of the final action of the Board, unless the Board specifically grants a longer period.

Respectfully submitted: Maria Carmen Cervantes Applicant's name printed

Applicant's signature

Affidavit

Before me the undersigned on this day personally appeared Maria Carmen Cervantes who on (his/her) oath certifies that the above statements are true and correct to his/her best knowledge and that he/she is the owner/or principal/or authorized representative of the subject

Affiant (Applicant's signature)



Subscribed and sworn to before me this 3rd day of February, 2011

Notary Public in and for Dallas County, Texas

MEMORANDUM OF
ACTION TAKEN BY THE
BOARD OF ADJUSTMENT

Date of Hearing _____

Appeal was--Granted OR Denied

Remarks _____

Chairman

Building Official's Report

I hereby certify that Maria Cervantes

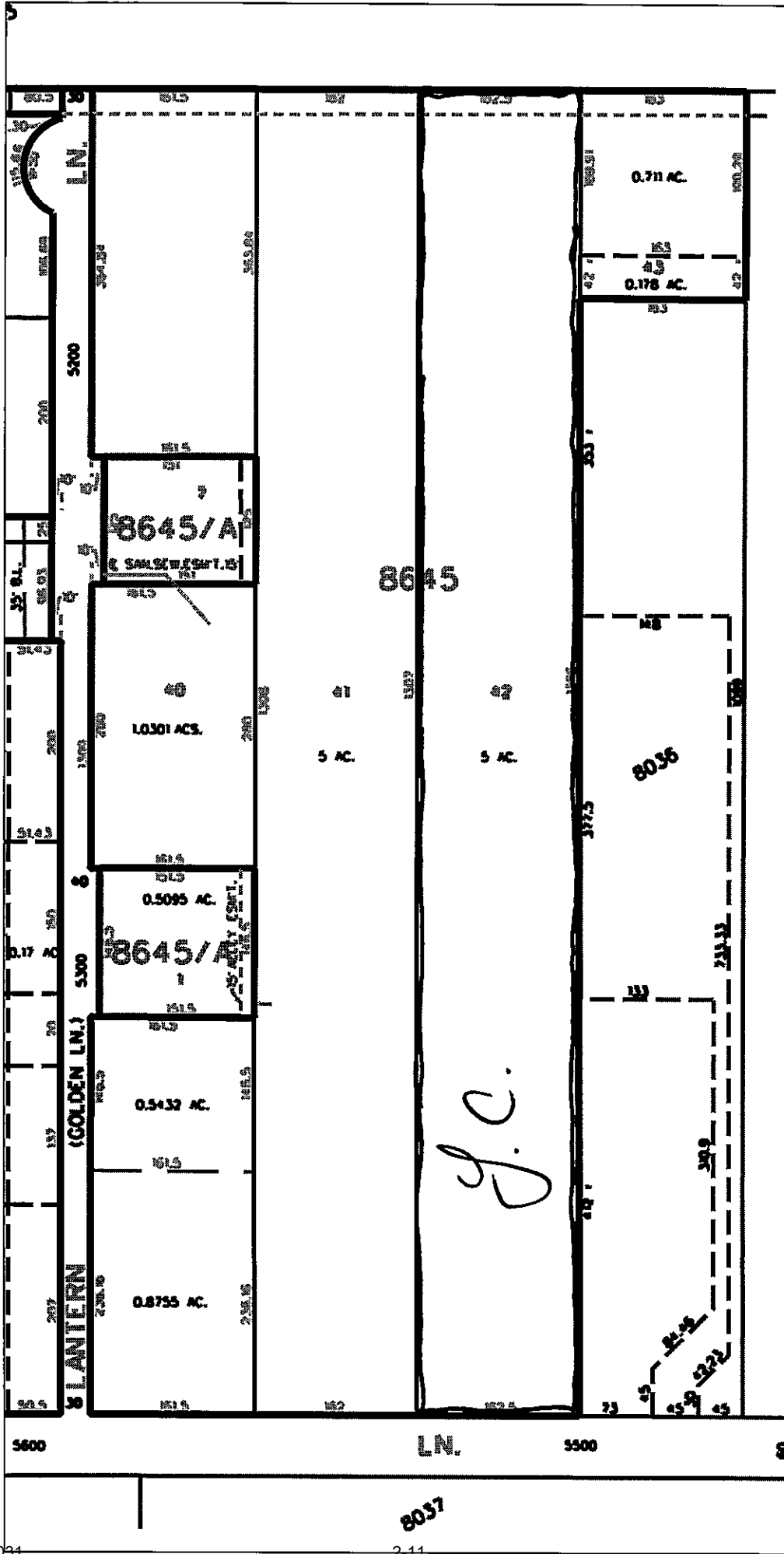
did submit a request for a special exception to the fence height regulations
at 5455 Rancho Lane

BDA101-031. Application of Maria Cervantes for a special exception to the fence height regulations at 5455 Rancho Lane. This property is more fully described as Lot 42 in city block 8645 and is zoned R-10(A), which limits the height of a fence in the front yard to 4 feet. The applicant proposes to construct and maintain a 6 foot 4 inch high fence in a required front yard setback, which will require a 2 foot 4 inch special exception to the fence regulation.

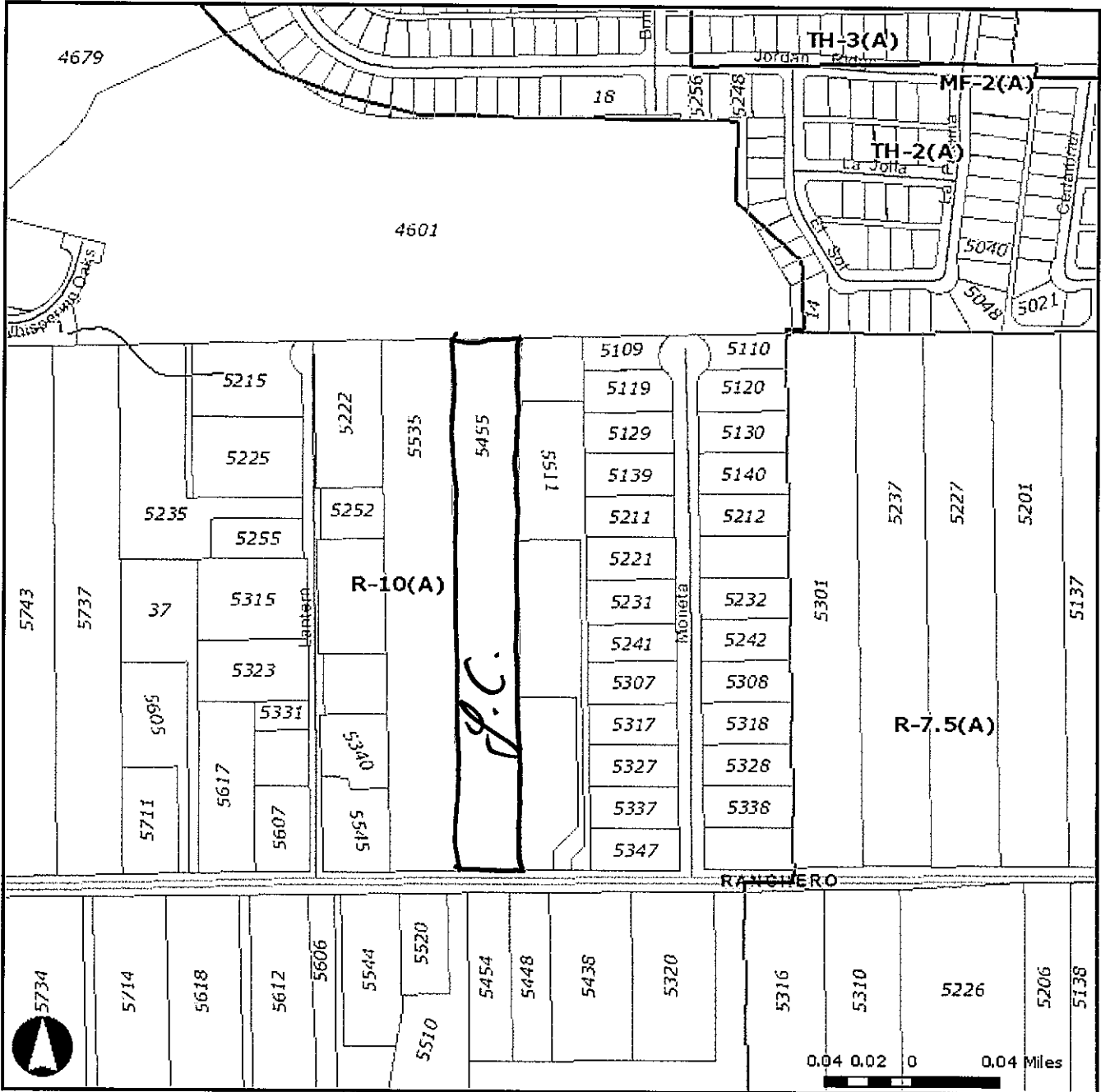
Sincerely,

Batsheba Antebi
Batsheba Antebi, Building Official

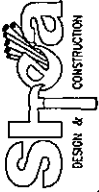




City of Dallas Zoning



<ul style="list-style-type: none"> City Boundaries County Certified Parcels DISD Sites Council Districts Waterways 	<ul style="list-style-type: none"> Dry Overlay D-1 Historic Overlay Historic Subdistricts NSO Overlay NSO Subdistricts 	<ul style="list-style-type: none"> Base Zoning Floodplain 500 Year A AE AH Mills Creek Peak's Branch X PROTECTED BY LEVEE Pedestrian Overlay
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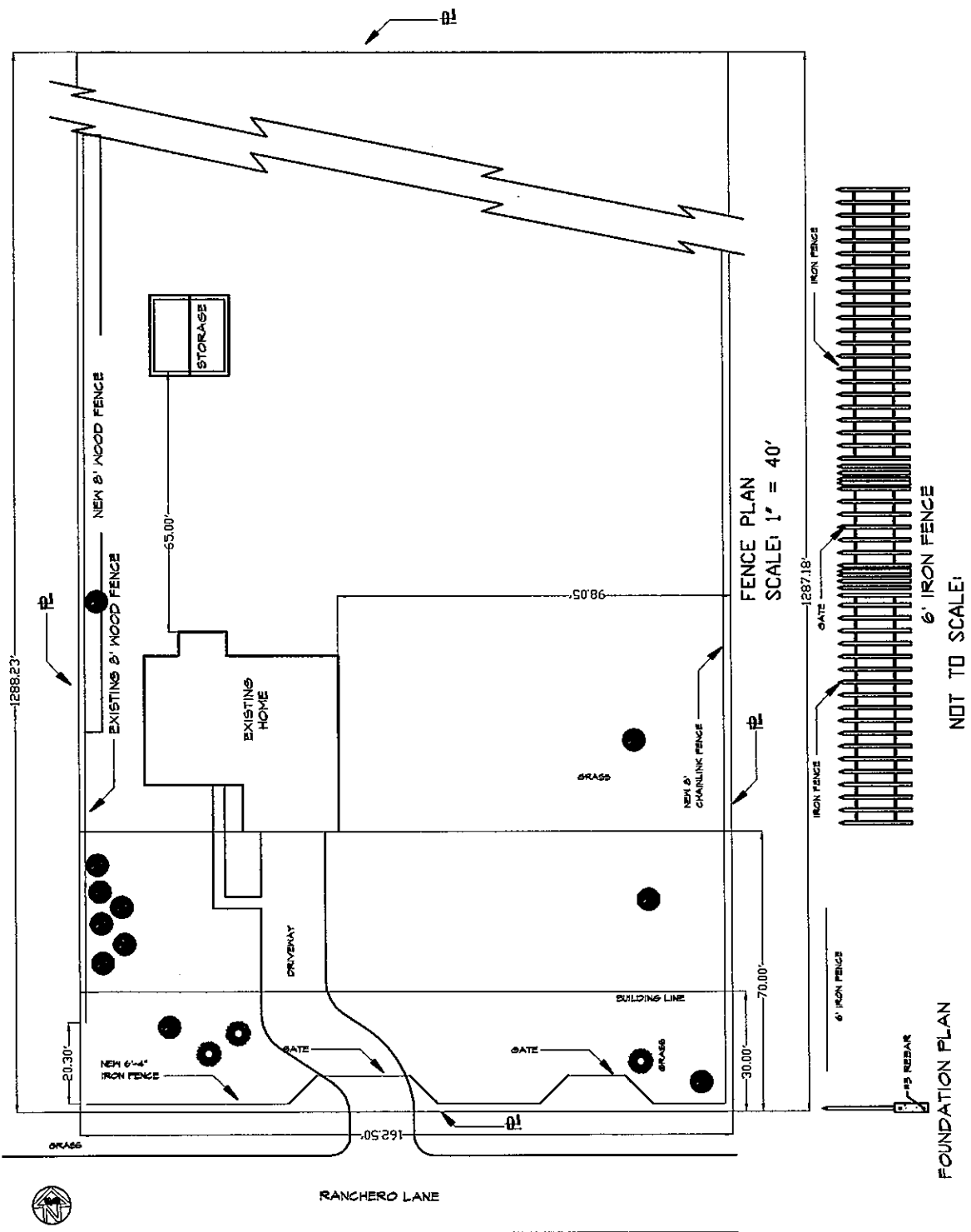
SHEA DESIGN
 &
 CONSTRUCTION
 737 S. RL THORNTON FHWY
 DALLAS, TEXAS 75203
 CELL (214) 616-7067
 FAX (214) 946-1165

JOB NO.	
DRAWN BY	
DATE	
SCALE	

PROJECT:
 CERVANTES FAMILY
 5455 RANCHERO LANE
 DALLAS, TEXAS 75236
 LOT: 42 BLK: 2645

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 SDC IS PROHIBITED.



pg 1

**RE: BDA101-031 Property at 5455
Ranchero lane. Dallas, Texas 75236.**

BDA101-031
Attach B
#52

**We the undersigned are in support of Mr. Cervantes
application to maintain his existing fence and add his
proposed gate:**

	Signed Name:	Printed Name:	Printed address:
1-	<i>Steve Van Roy</i>	Steve Van Roy	5411 Ranchero Dallas 75236 972-833-5452
2-	<i>Jesse Mendoza</i>	Jesse Mendoza	5337 MONETA LN, DALLAS, TX 75236
3-	<i>Jose Luis L</i>	Jose Luis L	5327 Moneta LN Dallas TX 75236
4-	<i>Ed Meali</i>	Ed Mealin	5221 MONETA LN. DALLAS, TEXAS 75236
5-	<i>Anali Zun</i>	Anali Zuniga	5129 Moneta Ln DALLAS, TX 75236
6-	<i>Fred Ebert</i>	Fred Ebert	5139 Moneta Dallas, TX 75236
7-	<i>Tino Carozza</i>	TINO Carozza	5438 Ranchero Ln 75236
8-	<i>Tom Burbank</i>	Tom Burbank	5454 Ranchero
9-	<i>Lance Brown</i>	Lance Brown	5510 Ranchero
10-	<i>Vickie L. Pitts</i>	Vickie L. Pitts	5544 Ranchero Ln. 75236
11-	<i>Kevin G. Spracklen</i>	Kevin G Spracklen	5320 Lantern Lane Dallas Tx 75236
12-	<i>David M. Smith</i>	David M. Smith	5252 Lantern Lane Dallas 75236
13-	<i>C Roy Cherry</i>	C. Roy Cherry	5311 Moneta Ln Dallas 75236
14-	<i>Mark Petersen</i>	Mark Petersen	5109 Moneta Ln Dallas 75236

**RE: BDA101-031 Property at 5455
Ranchero lane. Dallas, Texas 75236.**

**We the undersigned are in support of Mr. Cervantes
application to maintain his existing fence and add his
proposed gate:**

	Signed Name:	Printed Name:	Printed Address:
15	Willie Barnes	WILLIE BARNES	5241 MONETA LN
16	Virginia Chappell	Virginia Chappell	5307 Moneta Ln
17			



City of Dallas

APPLICATION/APPEAL TO THE BOARD OF ADJUSTMENT

Case No.: BDA 101-031

Data Relative to Subject Property:

Date: 2-14-11

Location address: 5455 Ranchero Ln Zoning District: R-10(A)

Lot No.: 42 Block No.: 8645 Acreage: 5 Census Tract: 165.01

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Owner of Property/or Principal: Jose & Maria Cervantes

Applicant: Maria Cervantes Telephone: 214 679 8463

Mailing Address: 5455 Ranchero Lane Zip Code: 75236

Represented by: _____ Telephone: _____

Mailing Address: 5455 Ranchero Lane Dallas Zip Code: 75236

Affirm that a request has been made for a Variance, or Special Exception of 2 FT 4 inches
of fence high in the front yard.

Application is now made to the Honorable Board of Adjustment, in accordance with the provisions of the Dallas Development Code, to grant the described request for the following reason:

To keep the front fence at 6ft as initiated.
I WAS NOT AWARE THERE WAS A LIMIT IN HEIGHT OF FENCE SINCE
SEVERAL NEIGHBOR'S FENCES ARE 6 FT. OR HIGHER

Note to Applicant: If the relief requested in this application is granted by the Board of Adjustment, said permit must be applied for within 180 days of the date of the final action of the Board, unless the Board specifically grants a longer period.

Respectfully submitted: Maria Carmen Cervantes
Applicant's name printed

[Signature]
Applicant's signature

Affidavit

Before me the undersigned on this day personally appeared Maria Carmen Cervantes
who on (his/her) oath certifies that the above statements are true and correct to his/her best knowledge and that he/she is the owner/or principal/or authorized representative of the subject

[Signature]
Affiant (Applicant's signature)

Subscribed and sworn to before me this 3rd day of February, 2011



[Signature]
Notary Public in and for Dallas County, Texas

MEMORANDUM OF
ACTION TAKEN BY THE
BOARD OF ADJUSTMENT

Date of Hearing _____

Appeal was--Granted OR Denied

Remarks _____

Chairman

Building Official's Report

I hereby certify that Maria Cervantes

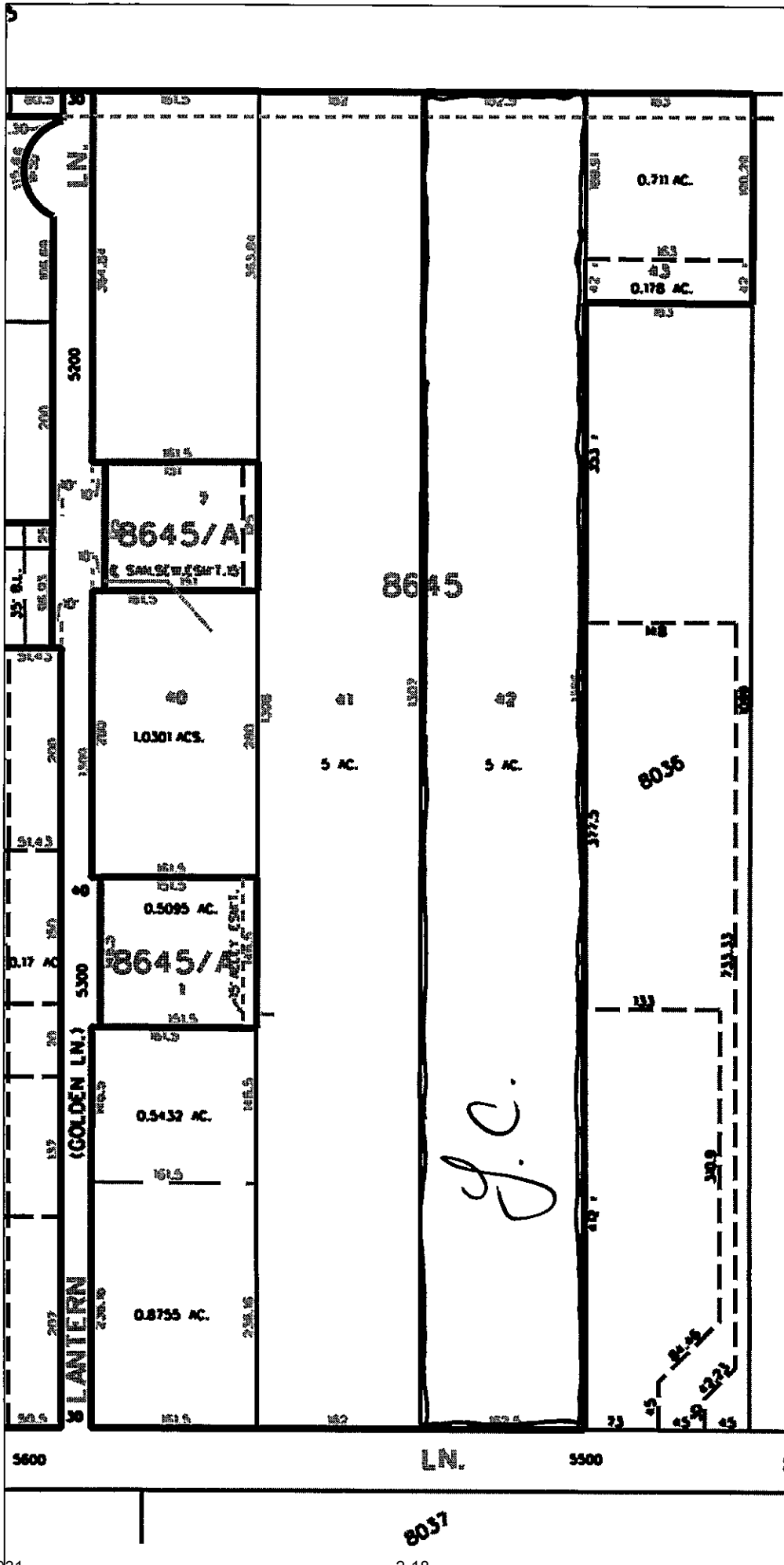
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BDA101-031. Application of Maria Cervantes for a special exception to the fence height regulations at 5455 Rancho Lane. This property is more fully described as Lot 42 in city block 8645 and is zoned R-10(A), which limits the height of a fence in the front yard to 4 feet. The applicant proposes to construct and maintain a 6 foot 4 inch high fence in a required front yard setback, which will require a 2 foot 4 inch special exception to the fence regulation.

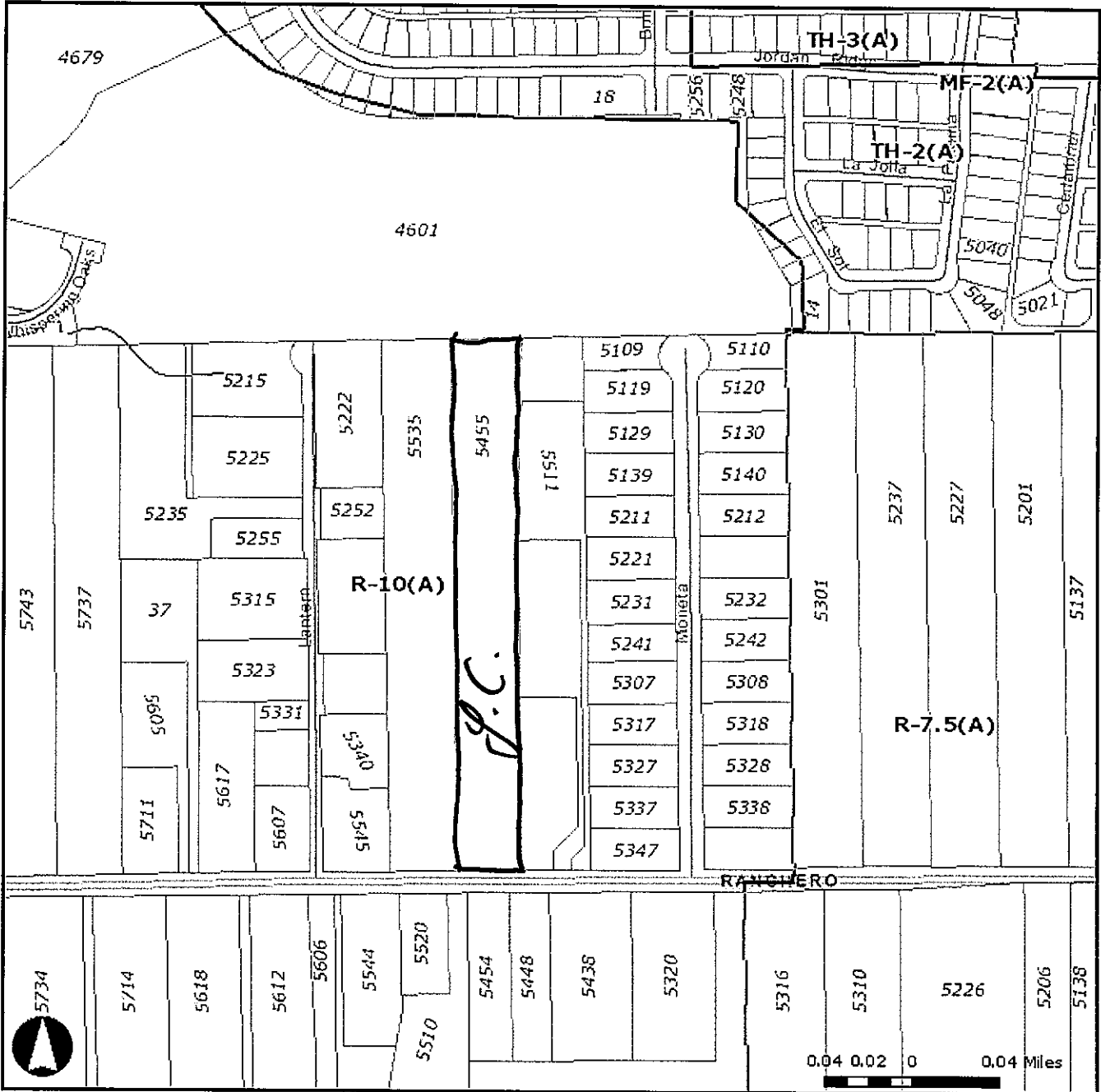
Sincerely,

Batsheba Antebi
Batsheba Antebi, Building Official





City of Dallas Zoning



City Boundaries



County



Certified Parcels



DISD Sites



Council Districts



Waterways



Dry Overlay



Historic Overlay



Historic Subdistricts



NSO Overlay



NSO Subdistricts



Base Zoning



Floodplain



500 Year



A



AE



AH



Mills Creek



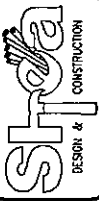
Peak's Branch



X PROTECTED BY LEVEE



Pedestrian Overlay



SHEA DESIGN & CONSTRUCTION
 737 S. RL THORNTON Fwy
 DALLAS, TEXAS 75203
 CELL (214) 616-7067
 FAX (214) 946-1165

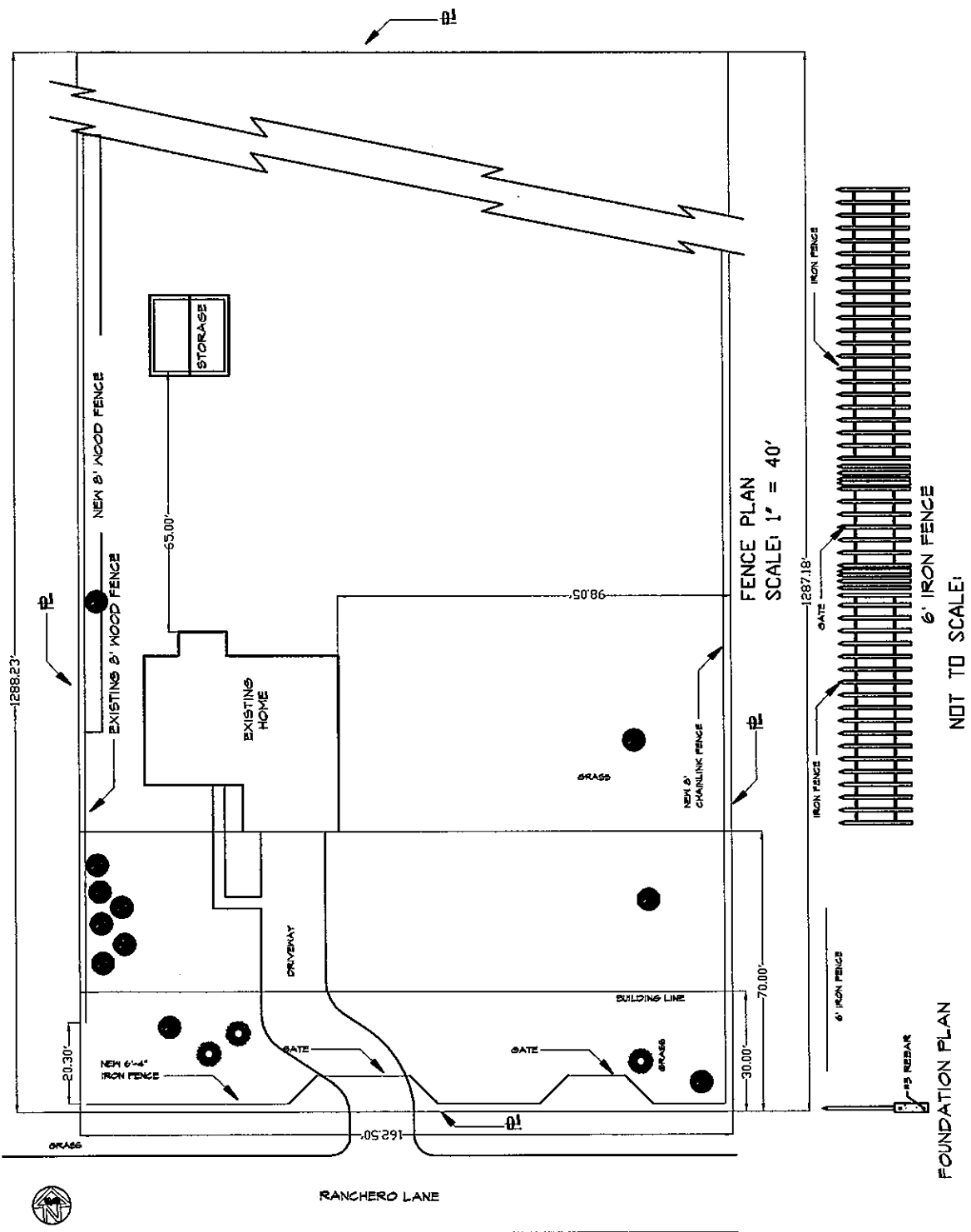
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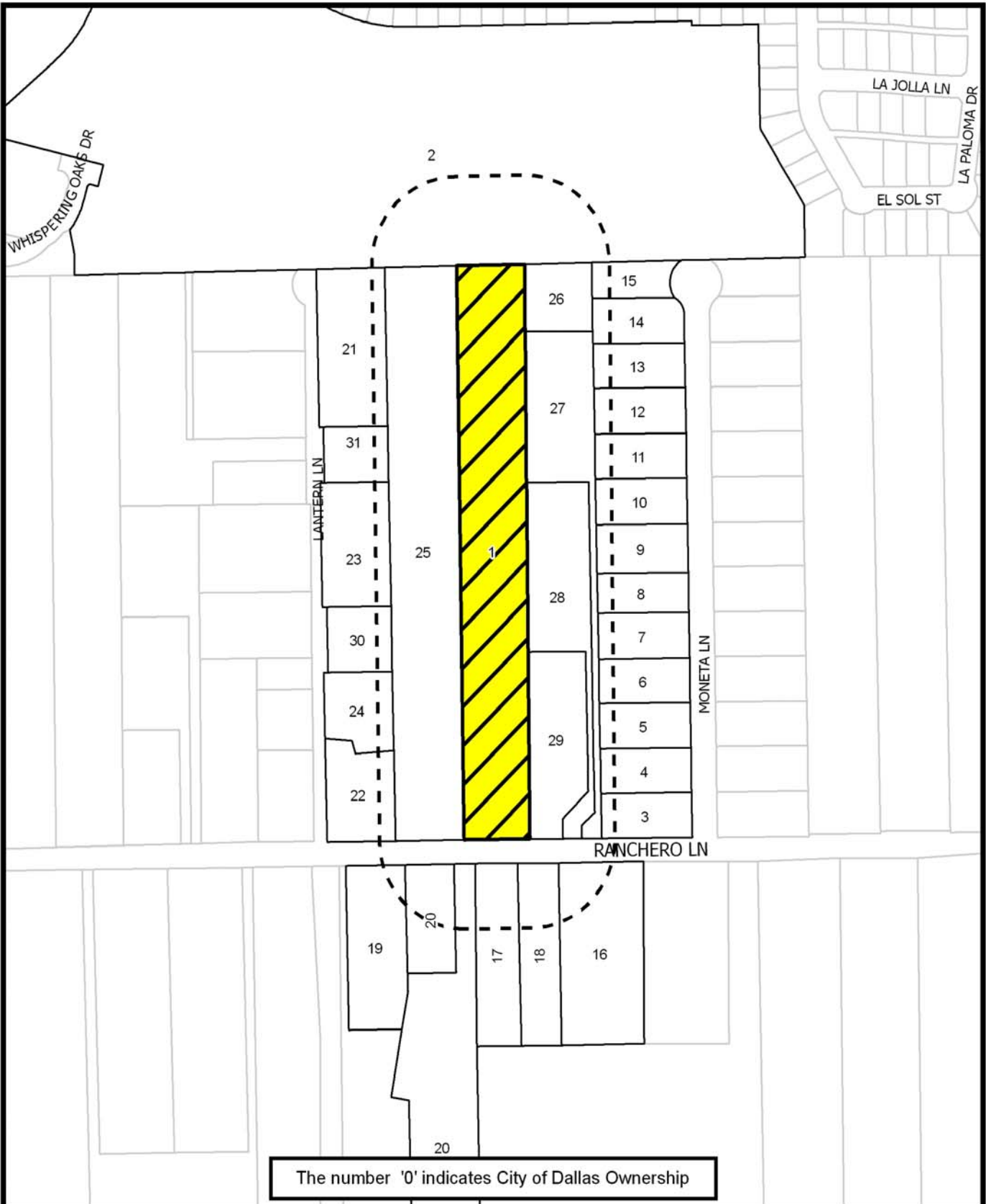
PROJECT: **CERVANTES FAMILY**
5455 RANCHERO LANE
DALLAS, TEXAS 75236
LOT: 42 BLK: 2645

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The number '0' indicates City of Dallas Ownership



1:3,600

NOTIFICATION

200'

AREA OF NOTIFICATION

31

NUMBER OF PROPERTY OWNERS NOTIFIED

Map no: O-4

Case no: BDA101-031

DATE: April 01, 2011

Notification List of Property Owners

BDA101-031

31 Property Owners Notified

Label #	Address	Owner
1	5455 RANCHERO	CERVANTES JOSE & MARIA D
2	4601 DUNCANVILLE	DUGUAY SUSAN C ET AL
3	5347 MONETA	ISBON SHIRLEY JUNE
4	5337 MONETA	MENDOZA JESSE %COUNTYWIDE HOME LOANS TAX (SV3-
5	5327 MONETA	SALMON JEREMY
6	5317 MONETA	DAVIS MADGE NELL
7	5307 MONETA	CHAPPELL VIRGINIA
8	5241 MONETA	BARNES JAMES W ETAL
9	5231 MONETA	LYONS LARRY L & JULIE B
10	5221 MONETA	MEALIO PENELOPE HIGHTOWER
11	5211 MONETA	CHERRY COLONEL ROY
12	5139 MONETA	EBERT F C JR ETAL
13	5129 MONETA	ZUNIGA DAVID & ACEVEDO ANALI
14	5119 MONETA	SHOCKLEY LAURA M & BRETT R SHOCKLEY
15	5109 MONETA	PETERSON MARK &
16	5438 RANCHERO	CARDOZA JUVENTINO & JEANIE
17	5454 RANCHERO	PARKER RANDLETT JR
18	5448 RANCHERO	BRADLEY ALBERT S JR
19	5544 RANCHERO	PITTS VICKIE L MORALES-
20	5520 RANCHERO	BROWN GLORIA C & LANCE E BROWN
21	5222 LANTERN	SMITH PAUL W & CINDY A STINSON
22	5545 RANCHERO	FEDERAL NATIONAL MORTGAGE ASSOCIATION
23	5300 LANTERN	SAKURADA BAOHOANG
24	5340 LANTERN	OKON ROBERT & BARBARA
25	5535 RANCHERO	SAIGE PROPERTIES
26	5511 RANCHERO	SHOCKLEY LAURA M & BRETT R
27	5511 RANCHERO	BEEKMAN GARY JOHN
28	5511 RANCHERO	VANROOY STEPHEN T

29	5511	RANCHERO	CAMSTAM LP
30	5320	LANTERN	SPRACKLEN KEVIN & D ELDA SPRACKLEN
31	5252	LANTERN	SMITH DAVID M

FILE NUMBER: BDA 101-035

BUILDING OFFICIAL'S REPORT:

Application of Jonathan Vinson for a variance to the parking regulations at 4512 W. Davis Street. This property is more fully described as a 4.867 acre tract of land in City Block 7212 and is zoned PD-811 (Subarea D) which requires parking to be provided. The applicant proposes to construct a residential structure for multifamily use and provide 134 of the required 166 parking spaces which will require a variance of 32 spaces.

LOCATION: 4512 W. Davis Street

APPLICANT: Jonathan Vinson

REQUEST:

- A variance to the off-street parking regulations of 32 spaces (or a 19 percent reduction of the off-street parking space requirement) is requested in conjunction with constructing and maintaining an approximately 104,000 square foot, 130-unit multifamily development on an undeveloped lot. The applicant proposes to provide 134 (or 81%) of the 166 parking spaces required by the zoning ordinance of PD No. 811.

STAFF RECOMMENDATION:

Approval

Rationale:

- The Sustainable Development Department Project Engineer has no objections to this off-street parking reduction request – therefore, granting this parking reduction variance is not contrary to the public interest.
- The applicant has substantiated how the variance to the parking regulations is necessary to permit development of the site which is different from other lots by its restrictive size, shape, or slope. The site is irregular in shape, sloped, has a substantial amount of tree cover that in turn limits the amount of its developable space unless trees are removed; and has a drainage easement that precludes the placement of structures over it on the site.

STANDARD FOR A VARIANCE:

The Dallas Development Code specifies that the board has the power to grant variances from the front yard, side yard, rear yard, lot width, lot depth, lot

coverage, floor area for structures accessory to single family uses, height, minimum sidewalks, off-street parking or off-street loading, or landscape regulations provided that:

- (A) the variance is not contrary to the public interest when, owing to special conditions, a literal enforcement of this chapter would result in unnecessary hardship, and so that the spirit of the ordinance will be observed and substantial justice done;
- (B) the variance is necessary to permit development of a specific parcel of land that differs from other parcels of land by being of such a restrictive area, shape, or slope, that it cannot be developed in a manner commensurate with the development upon other parcels of land with the same zoning; and
- (C) the variance is not granted to relieve a self created or personal hardship, nor for financial reasons only, nor to permit any person a privilege in developing a parcel of land not permitted by this chapter to other parcels of land with the same zoning.

GENERAL FACTS:

- PD No. 811 requires the following off-street parking requirement for multifamily use: a minimum of 1 space for each efficiency dwelling unit and for each dwelling unit with one bedroom; 1 ½ spaces for each dwelling unit with two or more bedrooms.

The applicant has submitted a “development plan”/site plan denoting 58 spaces required for the total amount of one bedroom apartments on the site and 108 spaces required for the total amount of two bedroom apartments on the site.

According to application and Building Official’s Report, the applicant proposes to provide 134 (or 81%) of the 166 parking spaces that would be required by ordinance for the 130 units that are proposed.

- The Dallas Development Code states that the Board of Adjustment may grant a special exception to authorize a reduction in the number of off-street parking spaces required under this article if the board finds, after a public hearing, that the parking demand generated by the use does not warrant the number of off-street parking spaces required, and the special exception would not create a traffic hazard or increase traffic congestion on adjacent and nearby streets; and that the maximum reduction authorized by this section is 25 percent or one space, whichever is greater, minus the number of parking spaces currently not provided due to already existing nonconforming rights.
- However, the Dallas Development Code states that the Board of Adjustment shall not grant a special exception to reduce the number of off-street parking spaces expressly required in the text or development plan of an ordinance establishing or amending regulations governing a specific planned development district. This prohibition does not apply when:
 - (A) the ordinance does not expressly specify a minimum number of spaces, but instead simply makes references to the existing off-street parking regulations in Chapter 51 or this chapter; or

(B) the regulations governing that specific district expressly authorize the board to grant the special exception.

- The applicant must seek his 19 percent off-street parking reduction request to the board as a variance (as opposed to the more typical special exception) since PD No. 811 expressly specifies a number of spaces required for multifamily use – a parking requirement of a minimum of 1 space for each efficiency dwelling unit and for each dwelling unit with one bedroom; and 1 ½ spaces for each dwelling unit with two or more bedrooms which is different from the Dallas Development Code – a requirement of generally 1 space per 500 square feet of floor area.
- The subject site appears to be somewhat sloped, irregular in shape, and according to the application, 4.867 acres in area. The site is zoned PD No. 811(Subarea D).
- DCAD records indicates “no improvements” on the site.
- On April 8, 2011, the applicant submitted additional information for the board’s consideration beyond what was submitted with the original application (see Attachment A).

BACKGROUND INFORMATION:

Zoning:

Site: PD No. 811 (Subarea D) (Planned Development)
North: PD No. 811 (Subarea E) (Planned Development)
South: PD No. 811 (Subarea D) (Planned Development)
East: PD No. 811 (Subarea D) (Planned Development)
West: PD No. 193 and IR (Planned Development and Industrial Research)

Land Use:

The subject site is undeveloped. The areas to the north, east, and south are undeveloped; and the area to the west is developed with office/warehouse use.

Zoning/BDA History:

There has not been any recent related board or zoning cases recorded either on or in the immediate vicinity of the subject site.

Timeline:

Undated: The applicant submitted an “Application/Appeal to the Board of Adjustment” and related documents which have been included as part of this case report.

March 17, 2011: The Board of Adjustment Secretary randomly assigned this case to Board of Adjustment Panel A.

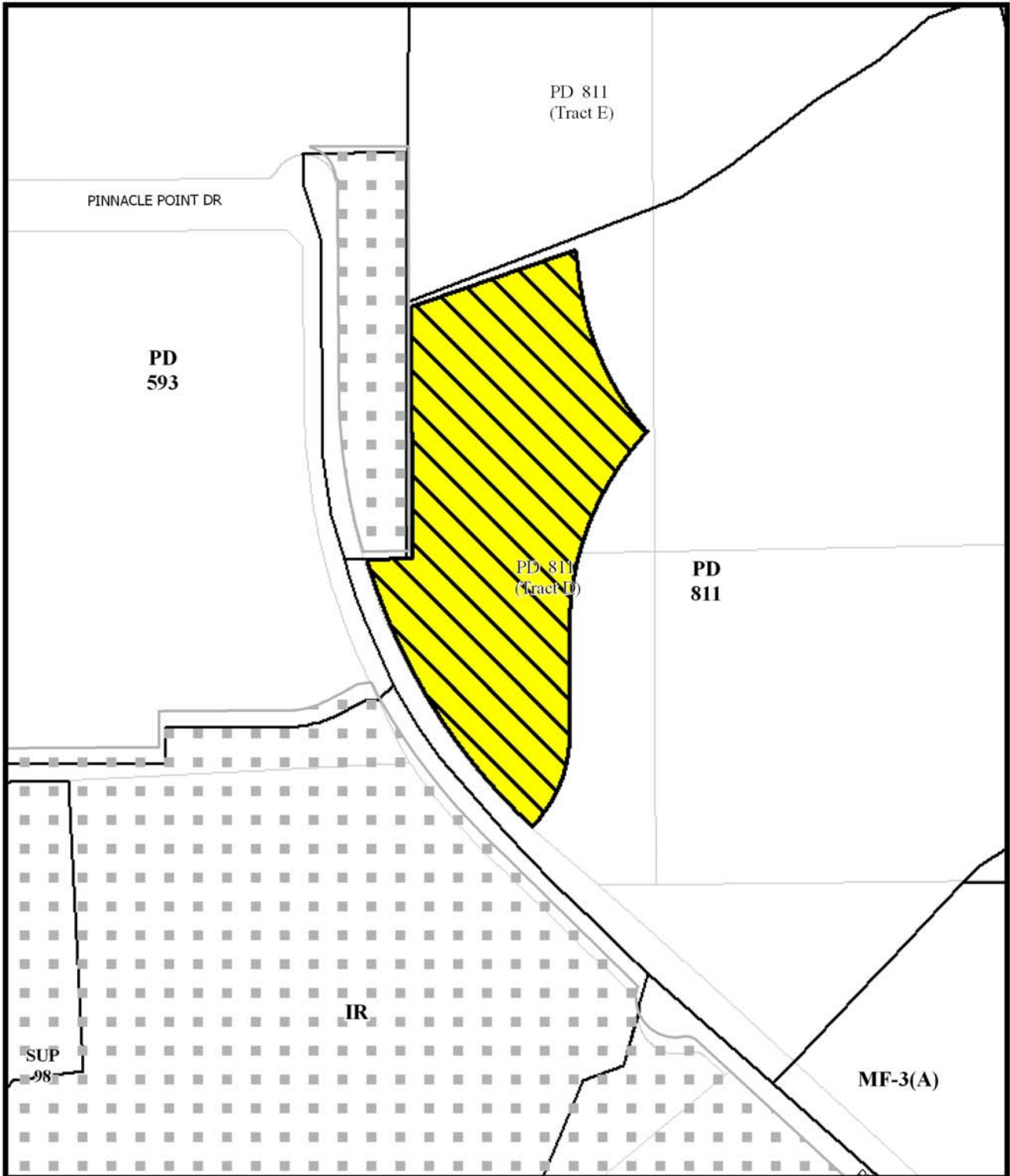
- March 17, 2011: The Board Administrator emailed the applicant the following information:
- an attachment that provided the public hearing date and panel that will consider the application; the April 4th deadline to submit additional evidence for staff to factor into their analysis; and the April 8th deadline to submit additional evidence to be incorporated into the Board's docket materials;
 - the criteria/standard that the board will use in their decision to approve or deny the request; and
 - the Board of Adjustment Working Rules of Procedure pertaining to documentary evidence.
- April 4, 2011: The applicant forwarded additional information beyond what was submitted with the original application for staff to review and consider.
- April 5, 2011: The Board of Adjustment staff review team meeting was held regarding this request and the others scheduled for April public hearings. Review team members in attendance included: the Sustainable Development and Construction Department Assistant Director, the Board Administrator, the Building Inspection Senior Plans Examiner/Development Code Specialist, the Sustainable Development and Construction Department Project Engineer, and the Assistant City Attorney to the Board.
- April 7, 2011: The Sustainable Development Department Project Engineer submitted a review comment sheet marked "Has no objections."
- April 8, 2011: The applicant forwarded additional information beyond what was submitted with the original application and beyond what was discussed at the April 5th staff review team meeting (see Attachment A).

STAFF ANALYSIS:

- This request focuses on providing 81 percent of the required off-street parking spaces in conjunction with constructing and maintaining an approximately 104,000 square foot, 130-unit multifamily development on an undeveloped lot. (The applicant proposes to provide 134 of the 166 off-street parking spaces required by the zoning ordinance of PD No. 811).
- The request to reduce the number of the required 166 parking spaces on the site by 32 spaces (or by 19 percent) must be considered by the board as a *variance* request (as opposed to the more typical special exception request) given Dallas Development Code provisions and that the site is located in PD No. PD No. 811 – a Planned Development District that expressly specifies a

number of spaces required for multifamily use (that being a minimum of 1 space for each efficiency dwelling unit and for each dwelling unit with one bedroom; and 1 ½ spaces for each dwelling unit with two or more bedrooms) that is different from the parking requirement for multifamily use provided in the Dallas Development Code (that being generally 1 space per 500 square feet of floor area).

- If the site were located outside of PD No. 811 in a general zoning classification that permits multifamily use, the same 32 space (or 19 percent) reduction request could be made as a *special exception* to the parking regulations since the amount of reduction being requested is less than 25% of the total number of parking spaces required.
- The subject site appears to be somewhat sloped, irregular in shape, and according to the application, 4.867 acres in area. The site is zoned PD No. 811(Subarea D).
- The applicant has the burden of proof in establishing the following:
 - That granting the variance to the parking regulations of 32 spaces will not be contrary to the public interest when, owing to special conditions, a literal enforcement of this chapter would result in unnecessary hardship, and so that the spirit of the ordinance will be observed and substantial justice done.
 - The variance is necessary to permit development of the subject site (that differs from other parcels of land by being of such a restrictive area, shape, or slope, that the subject site cannot be developed in a manner commensurate with the development upon other parcels of land in districts with the same PD No. 811 zoning classification.
 - The variance would not be granted to relieve a self created or personal hardship, nor for financial reasons only, nor to permit any person a privilege in developing this parcel of land (the subject site) not permitted by this chapter to other parcels of land in districts with the PD No. 811 zoning classification.
- The Sustainable Development and Construction Department Project Engineer has submitted a review comment sheet marked “Has no objections” to the request.




 1:2,400

ZONING MAP

Map no: K-5
 Case no: BDA101-035

DATE: April 01, 2011



1:2,400

AERIAL MAP

Map no: K-5

Case no: BDA101-035

DATE: April 01, 2011



JACKSON WALKER L.L.P.
ATTORNEYS & COUNSELORS

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April 8, 2011

Hon. Chair and Members, Panel A
Zoning Board of Adjustment
c/o Mr. Steve Long, Board Administrator
Department of Sustainable Development and Construction
City of Dallas
1500 Marilla Street, Room 5BN
Dallas, Texas 75201

Re: BDA 101-035; Parking Variance, 4512 West Davis Street

Dear Board Members:

We represent SLF III – The Canyon in Oak Cliff, L.P., in this parking variance request, asking for a reduction of 19 percent of the required parking (from 166 spaces otherwise required under P.D. 811 to 134 spaces, a reduction of 32 spaces) to facilitate the development of a high-quality seniors affordable multifamily residential development.

We provided extensive information to the City Staff earlier, and a complete copy of that information, including a detailed explanatory letter, is attached to this letter. I hope that you will review that information in preparation for our hearing, as well as the additional items I have provided and attached. I would like to summarize briefly in this letter our request; the most salient factors showing property hardship; and how our request supports the public interest by allowing this reduction in parking, all supported by the attached information.

As you know, the standard for a variance is found in Section 51A-3.102(d)(10), which grants the Board jurisdiction to grant variances to, among others, the off-street parking regulations that are “*not contrary to the public interest when, owing to special conditions, a literal enforcement of this chapter would result in unnecessary hardship, and so that the spirit of the ordinance will be observed and substantial justice done;*” and “*the variance is necessary to permit development of a specific parcel of land which differs from other parcels of land by being of such a restrictive area, shape, or slope that it cannot be developed in a manner commensurate with the development upon other parcels of the same zoning;*”, as well as not being self-created or personal or for financial reasons only. This request demonstrably meets all of those criteria.

First, the reason we had to apply for a variance to the off-street parking regulations, even though this request is for less than a 25 percent reduction (the threshold for parking special exceptions, which is a different standard) is explained in Section III of the attached letter to the Staff. There is a provision in Sec. 51A-4.311(a)(6) of the *Development Code* under the special exception regulations which precludes the ability to ask for a special exception if a parking ratio

for a use is specified in a Planned Development District. That is the situation we have here; however, one can always request a variance to the parking regulations, which is what we have done in this instance.

Further, there are a number of substantial property hardship factors at work here, as further illustrated on the site plan and the aerial photograph of the property. These include: (1) the *very irregular shape* of the property; (2) a great deal of *topography*, including a *35 foot fall* from the north edge of the proposed parking lot to the north property line; (3) a substantial amount of tree cover, and site planning of the site to leave about *30 percent of the site as an open space amenity*, reducing impervious coverage, assisting with drainage, and reducing the “heat island” effect; (4) the property will have three street frontages, thus establishing *three front yard setbacks*; and (5) there is a large *“S”-shaped 25 foot drainage easement* which winds through the middle of the property, and upon which no structures may be built. Taken together, all of those factors show a very clear property hardship situation, none of which are self-created or personal on the part of the Applicant.

In addition, the requested parking reduction is amply justified by the DeShazo Group Parking Analysis specific to this project, as well as a great deal of more general information regarding parking demand for both affordable housing and for seniors housing. Several of these items, including the DeShazo Group Parking Analysis, are attached as part of the packet which went to the Staff earlier this week.

The DeShazo Group Parking Analysis concludes that the proposed parking will be more than adequate for the demand generated by the development. In addition, even though we had to apply for a variance rather than for a special exception, the DeShazo Group study on Pages 5 and 6 enumerates the factors which would otherwise be considered in a special exception request, all of which are present and support this request, including the parking demand characteristics, the surrounding street system, and the availability of public transit.

I also refer you to the additional, more general literature on parking demand for affordable housing and for seniors housing, either attached as part of the Staff packet or attached in addition to this letter. For example, one study presented to an Institute of Transportation Engineers annual meeting finds an average peak parking demand for seniors housing of 0.4 spaces per unit. Another study concludes that seniors own about 31 percent fewer vehicles than the general population, and thus require less parking.

In addition, more information is attached showing that affordable housing also tends to generate less parking demand, as well as information showing the high environmental and financial costs (relevant to the affordability of affordable housing) of rigid, excessive parking requirements, and calling as part of Smart Growth efforts for parking reductions for seniors housing and for affordable housing to support better development patterns and affordability. I hope that you will consider all of this information as you prepare for our hearing on April 19.

In conclusion, this request clearly meets the standard for approval of a variance, in that there are multiple severe property hardship factors; and that the public interest is supported by

Mr. Steve Long, Board Administrator

April 8, 2011

Page 3

facilitating the development of this affordable seniors multifamily housing, as well as by not requiring excessive surface parking, which would otherwise create additional runoff and a larger heat island effect, and would have other detrimental impacts on the environment not just for this development but affecting the larger community. We will respectfully be requesting your approval of our application at your hearing. Thank you very much and we look forward to appearing before you.

Very truly yours,



Jonathan G. Vinson

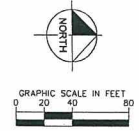
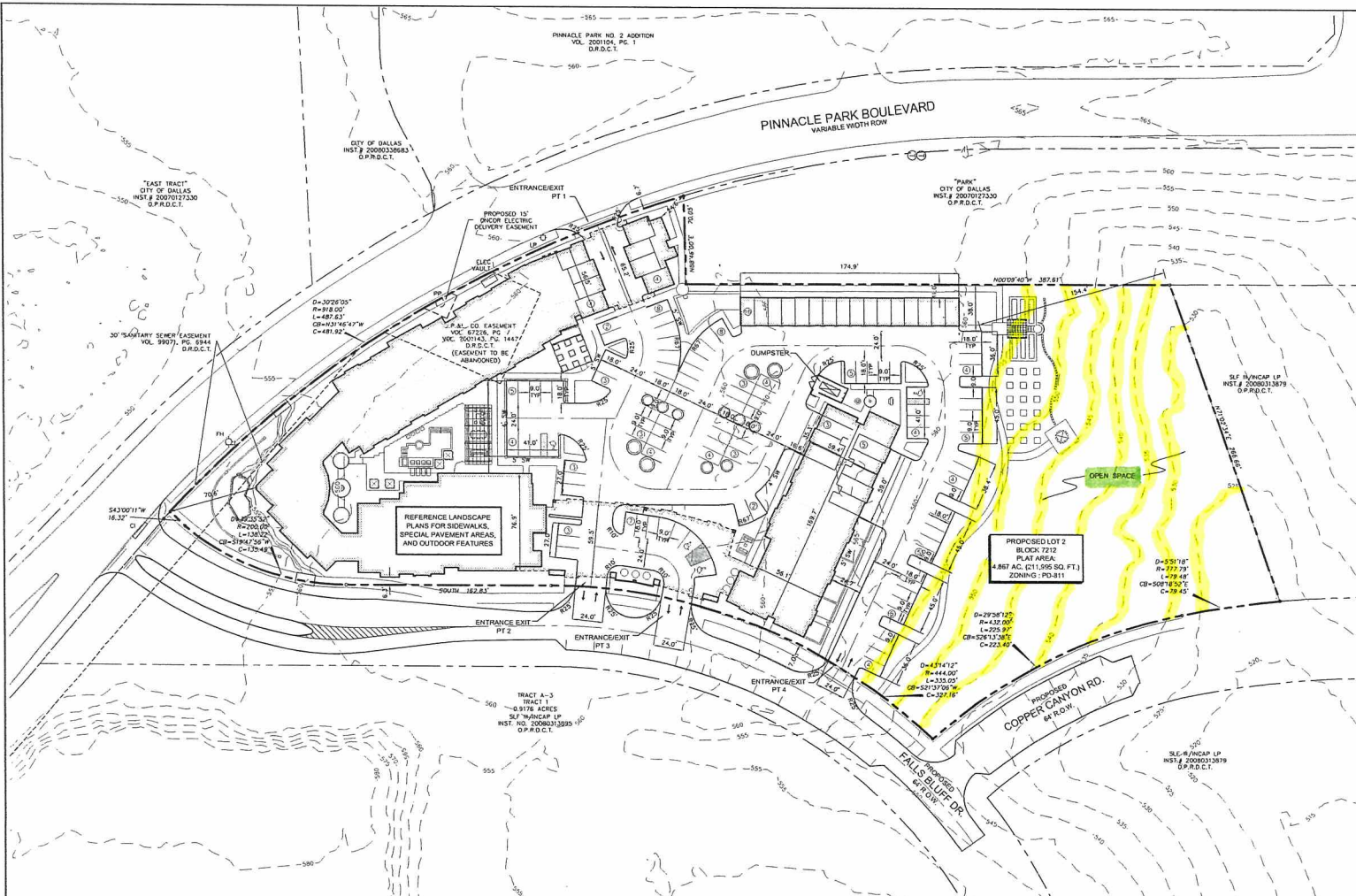
cc: Brandon Bolin
Alan McDonald
Rick Williamson
Steve Stoner
David Nevarez
David Meyers
Susan Mead

BDA 101-035

ATTACHMENTS

(attached publications have most salient points highlighted)

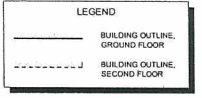
1. Proposed site plan with “open space” area and topography lines highlighted
2. Explanatory letter to City Staff dated April 4, 2011, with attachments:
 - A.. Site plan
 - B. Aerial photograph showing approximate location of site
 - C. DeShazo Group, Inc. Parking Analysis dated March 9, 2011
 - D. Institute of Transportation Engineers study, *Senior Housing Trip Generation and Parking Demand Characteristics*
 - E. Excerpts from *Parking Spaces/Community Places – Finding the Balance through Smart Growth Solutions*, U.S. Environmental Protection Agency, 2006
 - F. *Rational Parking*, produced by the Great Communities Collaborative
3. *Parking Requirements and Affordable Housing*, Congress for the New Urbanism
4. *Parking Regulations and Housing Affordability*, U.S. Department of Housing and Urban Development, *Regulatory Barriers Clearinghouse*, March, 2008
5. *Parking Requirements Guide for Affordable Housing Developers*, Southern California Association of Non-Profit Housing
6. *Parking Requirement Impacts on Housing Affordability*, Victoria Transport Policy Institute, February 18, 2011
7. Area map showing DART bus and rail routes in relation to site



SITE DATA	
TOTAL SITE AREA (GROSS)	211,995 S.F. 4.867 AC.
PARK AREA	63,855 S.F. 1.466 AC.
TOTAL SITE AREA (NET)	148,140 S.F. 3.401 AC.
MAIN BUILDING FOOTPRINT AREA	42,723 S.F. 0.981 AC.
DETACHED GARAGE FOOTPRINT AREA	4,000 S.F. 0.092 AC.
TOTAL BUILDING FOOTPRINT AREA	46,723 S.F. 1.073 AC.
PAVEMENT AREA	62,181 S.F. 1.427 AC.
TOTAL SITE IMPERVIOUS AREA	108,904 S.F. 2.500 AC.
PERVIOUS AREA (DEVELOPED AREA)	39,236 S.F. 0.901 AC.
PERVIOUS AREA (OPEN SPACE)	63,855 S.F. 1.466 AC.
TOTAL SITE PERVIOUS AREA	103,091 S.F. 2.367 AC.

UNIT DATA	
TOTAL NUMBER OF UNITS	130 UNITS
UNIT DENSITY (130 / 4.867)	26.7 UNITS PER ACRE
BUILDING HEIGHTS	43'-2 1/2" TO 4th FLOOR T.O.P.

PARKING DATA	
PARKING REQUIRED:	MULTIFAMILY 1 SP / 1 BED APT = 58 SP 1.5 SP / 2 BED APT = 108 SP TOTAL REQUIRED = 166 SP.
PARKING PROVIDED:	
STANDARD	98 SP
HANDICAP (2% MIN)	(2.4%) 4 SP
GARAGE (ATTACHED)	16 SP
GARAGE (DETACHED)	16 SP
TOTAL PARKING PROVIDED	* 134 SP



BUILDING ANALYSIS				
UNIT TYPE	BUILDING AREAS	Net SF		NUMBER OF UNITS
		HUO(1)	Gross SF	
A1	1BR/1BA,V,VDN	705	727	18
A1-HC	1BR/1BA,V,VDN	705	727	2
A2	1BR/1BA,V,VDN	705	727	17
A2-HC	1BR/1BA,V,VDN	705	727	1
A3	1BR/1BA,V,VDN	705	727	19
A3-HC	1BR/1BA,V,VDN	705	727	1
B1	2BR/2BA,V,VDN	833	860	35
B1-HC	2BR/2BA,V,VDN	833	860	1
B2	2BR/2BA,V,VDN	833	860	34
B2-HC	2BR/2BA,V,VDN	833	860	2
TOTAL UNITS				130
BUILDING TYPES				TOTAL
NUMBER OF BUILDINGS				1
HUO GROSS SF TOTALS @ BUILDING				104,086
HUO GROSS SF TOT. FOR BLDGS				104,086

HILLSIDE WEST DALLAS, TEXAS

DEVELOPMENT PLAN

SHEET
1



JACKSON WALKER L.L.P.
ATTORNEYS & COUNSELORS

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jvinson@jw.com

April 4, 2011

Via Scan/Email

Mr. Steve Long, Senior Planner
Current Planning Division
Department of Sustainable Development and Construction
City of Dallas
1500 Marilla Street, Room 5BN
Dallas, Texas 75201

Re: BDA 101-035; Parking Variance, 4512 West Davis Street

Dear Mr. Long:

In preparation for your Staff team meeting this week, I am sending you this letter to demonstrate for the Staff that this request meets the required Development Code standard for the requested variance. In addition to this letter and attachments, I will be providing you with more detailed information on or before April 8, the date upon which the information is required for the Board Panel's packets, so that it can be included in that packet.

I. Applicable Standard. The standards for a variance are set forth in Section 51A-3.102(d)(10) of the Development Code and the Staff is very familiar with it, so I will not repeat it here. However, I will discuss below how this request meets each of these standards, based on several property hardship factors, as well as its being in support of the public interest by helping to provide high-quality seniors affordable multifamily residences with an appropriate parking supply; that is, sufficient parking for the use of the residents and their guests, while not providing more than is necessary and thus avoiding excess impervious cover, a heat island effect, excessive run-off, and other detrimental factors.

II. Our Request. This property is located in Planned Development District No. 811. The proposed multifamily use has a parking requirement under P.D. 811 of one space per dwelling unit for one bedroom units and 1.5 spaces per dwelling unit for two bedroom units. The proposed seniors affordable multifamily development will consist of 130 dwelling units, including 58 one-bedroom units and 72 two-bedroom units. This would lead to an off-street parking requirement of 166 spaces. The applicant proposes to provide 134 spaces, a reduction of 32 spaces, or approximately 19 percent.

III. Reason for Applying for a Variance. The *Dallas Development Code* provides in Section 51A-4.311 that an applicant may apply for a parking special exception if the reduction is 25 percent or less from the Code requirement. This special exception carries with it a different

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standard for the Board's consideration of the request than does a variance request. The reason for our application for a variance to the off-street parking requirement is based on the provisions of Section 51A-4.311(a)(6) of the Code, which says that "*the Board shall not grant a special exception under Paragraph (1) to reduce the number of off-street parking spaces expressly required in the text or development plan of an ordinance establishing or amending regulations governing a specific planned development district.*"

In this instance, because the use will be classified as "multifamily", and because P.D. 811 specifies a parking ratio for multifamily use, that precludes the ability of the applicant to go to the Board to request a parking special exception. However, the Board does have jurisdiction in any circumstances to consider a variance to the off-street parking regulations. Therefore, even though is a reduction in parking of only 19 percent, and would otherwise be considered as a special exception, we are required under the above-referenced Code provision to apply for a parking variance.

IV. Property Hardship Factors. The standard for a variance has been referred to above. In this instance, the site has a number of *very serious property hardship factors*, as illustrated on the attached site plan and aerial photograph of the site. First, the site has an *extremely irregular shape*. This obviously presents serious site planning challenges to accommodate the development within required setbacks, lot coverage and other requirements, as well as surface parking. *Second*, as you can see on the site plan, there is an *unusual amount of topography* which affects the site. In fact, there is a fall of approximately 35 feet just from the north edge of the proposed parking lot to the north property line of the site. That portion of the property is thus rendered essentially unbuildable.

Third, this same area which has a severe fall, as well as a substantial amount of tree cover (see the aerial photograph) is site planned to serve as an *open space amenity for the development*, thereby reducing impervious coverage, assisting with drainage, avoiding a heat island effect, and other beneficial effects. This open space area is approximately 1.466 acres out of the total 4.867 acre site, which is *about 30.1 percent of the entire site*. *Fourth*, when the property is developed and the additional streets are put in, the property will have *three street frontages with three front yards*. This also affects the planning of the site and makes development more challenging.

Fifth and finally, the "S"-shaped main driveway which you see going through the center of the development is laid out in that configuration because it sits on top of an *existing 25 foot drainage easement* which will remain in place. The presence of the drainage easement means that no structures can be built on top of it, which is also a very challenging factor in site planning the site. Taken together, all of the above factors show a *very clear property hardship situation, which is in no way self-created on the part of the applicant*.

V. Support of Public Interest; Parking Reduction Justified. In addition, an element of the variance standard is that the requested variance *not be contrary to the public interest*. In this case, the variance actually *supports* the public interest, by providing for an appropriate (that is, not excessive but still more than adequate) parking supply for the proposed seniors affordable

multifamily development and thus facilitates that development. I refer you to the submitted Technical Memorandum dated March 9, 2011 (copy attached), wherein the DeShazo Group has analyzed the requested parking reduction and the conclusion is reached that the proposed parking supply of 134 spaces, or 80.7 percent of the Code-required parking, will satisfy the parking needs for the proposed seniors affordable multifamily development. The Parking Analysis emphasizes that “the proposed development possess two unique characteristics that affect parking demand: ‘affordable’ and ‘senior’”, and goes on to provide very specific information on both characteristics supporting the parking reduction.

On pages 5 and 6 of the Parking Analysis, the DeShazo Group engineers analyze the request in light of the factors to be considered by the Board enumerated for a special exception, even though for the technical reasons explained above this request had to be filed as a variance request. Even so, we urge you to consider each of those factors, including the parking demand characteristics, the surrounding street system, and the availability of public transit, and to take them into account not just because those are what the board would otherwise consider had this been a special exception request under normal circumstances, but also because they all show that the request strongly supports the public interest in facilitating the development of this project while providing sufficient but not excessive parking.

VI. Additional Supporting Information. Finally, I am providing you in attachments to this letter additional, objective study information on significantly reduced parking demand for seniors housing, including:

1) “*Senior Housing Trip Generation and Parking Demand Characteristics*”, presented by Stephen B. Corcoran, P.E. to the Institute of transportation Engineers 1996 Annual Meeting (finds an average peak parking demand for seniors housing of 0.40 space per unit);

2) Excerpt from “*Parking Spaces/Community Places - Finding the Balance Through Smart Growth Solutions*”, published in 2006 by the Development, Community, and Environment Division of the U.S. Environmental Protection Agency, emphasizing the high environmental and financial costs of “generic”, rigid parking requirements and calling on pp. 15-16 under “Innovative Parking Alternatives” for parking reductions for seniors and affordable housing to support better development patterns and affordability; and

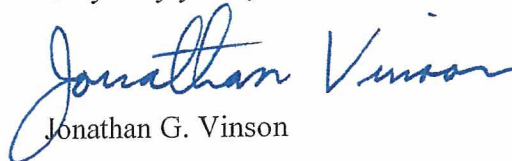
3) “*Rational Parking*” published by the Great Communities Collaborative in Northern California, concluding that seniors own fewer vehicles (in their example, 31 percent fewer vehicles), and thus require less parking, which supports both better design and affordability.

In fact, the City of Dallas itself, through the ongoing work of the Zoning Ordinance Committee, is extensively studying current required parking standards, many of which go back to the 1960s or 1970s, and whether they need to be changed to meet current and future conditions.

Steve Long, Senior Planner
April 4, 2011
Page 4

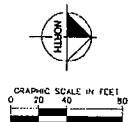
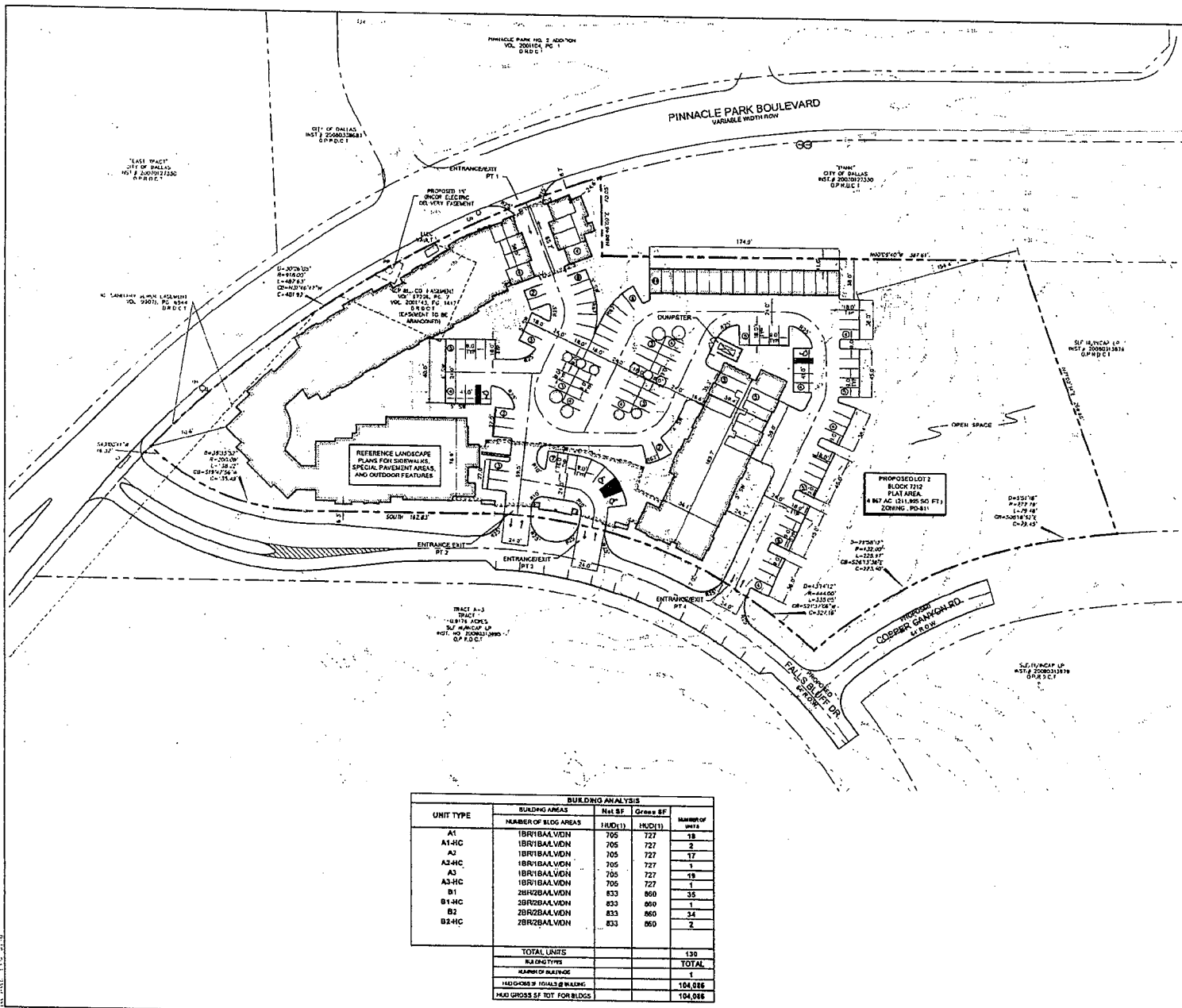
VII. Conclusion. We respectfully request that staff take all of the foregoing information into consideration and recommend approval of our variance request to the Board of Adjustment. We would be happy to answer any questions you may have or to discuss any of this further with you at any time. As stated above, we will also take the opportunity to provide additional information to the board, through the Staff, for the Board packets prior to the hearing, which information will be delivered to Staff to meet the April 8 deadline. Thank you very much for your time and consideration.

Very truly yours,


Jonathan G. Vinson

JGV:rss

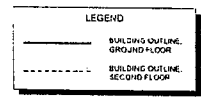
cc: Brandon Bolin
Alan McDonald
Rick Williamson
Steve Stoner
Susan Mead



SITE DATA	
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PARK AREA	63,855 S.F. 1.466 AC
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PARKING REQUIRED:	MULTIFAMILY 1 SP / 1 BED APT = 58 SP 1.5 SP / 2 BED APT = 108 SP TOTAL REQUIRED = 166 SP
PARKING PROVIDED:	
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MANIC/P (2% MIN)	(2.4%) 4 SP
GARAGE (ATTACHED)	16 SP
GARAGE (DETACHED)	16 SP
TOTAL PARKING PROVIDED	134 SP
* 19.3% PARKING REDUCTION	



BUILDING ANALYSIS				
UNIT TYPE	BUILDING AREA	Net SF		Number of UNITS
		HUD(1)	HUD(1)	
A1	1BR1BAALVDN	705	727	18
A1-4C	1BR1BAALVDN	705	727	2
A2	1BR1BAALVDN	705	727	17
A3-4C	1BR1BAALVDN	705	727	1
A3	1BR1BAALVDN	705	727	19
A3-4C	1BR1BAALVDN	705	727	1
B1	2BR2BAALVDN	833	860	35
B1-4C	2BR2BAALVDN	833	860	1
B2	2BR2BAALVDN	833	860	24
B2-4C	2BR2BAALVDN	833	860	2
TOTAL UNITS				130
B.U. CHG TYPES				TOTAL
NUMBER OF BUILDINGS				1
MAX CHGERS @ BUILDING				104,016
MAX GROSS SF TOT FOR BLDGS				104,016

No. _____ Date _____ Revision _____

Kimley-Horn and Associates, Inc.
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Dallas, TX 75244
Tel: (972) 775-2800
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**HILLSIDE WEST
DALLAS, TEXAS**

DEVELOPMENT PLAN

DATE	DESCRIPTION

SHEET
1




 City of Dallas
 1500 Marilla Street
 Dallas, Texas 75201
 (214)-670-4513

City of Dallas

DISCLAIMER
 This data has been compiled for The City of Dallas. Various official and unofficial sources were used to gather this information. Every effort was made to ensure the accuracy of this data, however, no guarantee is given or implied as to the accuracy of said data.



***APPROXIMATE* location of
site outlined in green**

**PARKING ANALYSIS FOR
HILLSIDE WEST SENIOR AFFORDABLE
MULTIFAMILY DEVELOPMENT
IN DALLAS, TEXAS**

Prepared for:

GroundFloor Development
3109 Knox Street #305
Dallas, Texas 75205

Prepared by:

DeShazo Group, Inc.
400 South Houston Street
Suite 330 • Union Station
Dallas, Texas 75202
Phone (214) 748-6740

March 9, 2011



Texas Registered Firm – 3199

DeShazo #11031



Traffic. Transportation Planning. Parking. Design.

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deshazogroup.com

Technical Memorandum

To: Mr. Brandon Bolin, Esq. — *GroundFloor Development*
From: DeShazo Group, Inc.
Date: March 9, 2011
Re: **Parking Analysis for Hillside West Senior Affordable Multifamily Development in Dallas, Texas** *DeShazo Project No. 11031*

INTRODUCTION

The services of **DeShazo Group, Inc** (DeShazo) were retained by **GroundFloor Development** to analyze the parking needs for a proposed senior affordable multifamily development. DeShazo is an engineering consulting firm based in Dallas, Texas, providing licensed engineers skilled in the field of traffic/transportation engineering and parking design and analysis.

Project Description

The subject 4.867-acre site is located at 4512 West Davis Street in Dallas, Texas (City Block 7212, Lot 2). It is part of Tract D of Planned Development District 811 (PD 811) and is subject to parking requirements set forth in Section 51P-811.119. The proposed Hillside West senior affordable multifamily development consists of 130 dwelling units. A supply of 134 off-street parking spaces is proposed.

Purpose

Findings of this study are intended to provide the basis for a Variance request to reduce the direct parking requirements for the proposed development. This memorandum summarizes the code parking requirement and the projected parking demand based upon published national technical data by the Institute of Transportation Engineers (ITE) and DeShazo's professional judgment and experience from prior parking studies. The study will be provided to the City of Dallas staff ("the Staff") for technical review to consider in the Variance request.

*Parking Analysis for Hillside West
Senior Affordable Multifamily Development
Page 1*

CODE PARKING REQUIREMENT

The proposed multifamily development is subject to parking requirements set forth in Section 119 of PD 811. The respective parking rates were applied to the proposed development plan; results are tabulated as follows.

Table 1. Base Parking Requirement Summary per PD 811

LAND USE	QUANTITY	PARKING RATE <i>§51P-811.119</i>	REQUIRED PARKING
Multifamily			
1-bedroom	58 Units	1.0 space/DU	58.0
2-bedrooms	72 Units	1.5 space/DU	108.0
<i>Off-street Parking Requirement:</i>			166 spaces
<i>Proposed Parking Supply:</i>			134 spaces
<i>Resulting Surplus/(Deficit):</i>			(32 or 19%)

As shown in **Table 1** above, 166 spaces are required to satisfy the base code parking requirement as per direct application of PD 811. The proposed parking supply of 134 off-street spaces would result in a deficit of thirty-two off-street parking spaces

DeShazo’s professional experience in the analysis of parking demand characteristics justifies further consideration than is provided by direct application of the codes for certain land uses. In some cases, parking code criteria are based upon outdated premises or worst-case scenarios that are not applicable to individual developments. This study herein describes the technical basis of the parking reduction request for the proposed project.

PARKING DEMAND STUDY

The proposed development possesses two unique characteristics that effect parking demand: “affordable” and “senior”. “Affordable housing is a designation governed by the Department of the Treasury Low Income Housing Tax Credit Program and is administered in Texas by the Texas Department of Housing and Community Affairs (TDCHA). This program entails strict federal guidelines that must be followed. Rents of the units are based upon residents earning less than 60% of the Area Median Income. Additionally, the proposed development is “senior” housing facility, which is restricted to residents age 55 or older. This restriction is also governed by the TDHCA. (NOTE: Depending upon the financing for the project, this age restriction may increase to 62 or older.) Most residents of this category of housing are retired from full-time employment or otherwise not employed.

While published data from industry manuals are not available for this use, the individual traits can be shown to generate reduced parking demand. The following sections describe how each of these factors result in a lower parking demand ratio than is otherwise required by PD 811.

Affordable Housing

DeShazo has conducted numerous parking accumulation studies for multifamily uses throughout the Dallas metropolitan area. Table 2 provides a summary of selected parking demand studies conducted at three representative properties in the Dallas metropolitan area that, while not specific to senior housing, are examples of the parking demand for affordable multifamily development that similar in character and scale to the proposed development.

Table 2. DeShazo Multifamily Parking Demand Analysis Historical Database

Name of Property (Location)	Date of Study	Total Number of Dwelling Units	Observed Vehicles Parked on Site*	Parking Demand per Dwelling Unit
Madison Point Apts. (Southeast Dallas)	12/06/09	176	173	0.98
Rosemont at Lakewest (Southeast Dallas)	12/06/09	151	123	0.81
Reese Court Villas (South Dallas)	12/06/09	80	70 (+26 enclosed one-car garages, assumed 100% occupied)	1.20
AVERAGE	—	[407]	[392]	0.96

NOTE: During this data collection, all vehicles parked on site and on nearby streets (including residents and visitors) that may be reasonably associated with the subject property were included in the study. All parking accumulation data were collected between the hours of 12:00 AM and 5:00 AM on weekdays in order to capture the overall peak demand when the maximum number of residents are parked on site.¹

The results provided in Table 2 illustrates that the average parking demand for the studied affordable housing projects is less than 1.0 parked vehicle per dwelling unit. The planned supply at the proposed Hillside West senior affordable multifamily development provides 1.03 parking spaces per dwelling unit. On this basis, the planned parking supply is expected to satisfy the parking needs for an affordable housing development.

Senior Housing

In order to demonstrate the parking characteristics of senior housing, DeShazo consulted parking demand data published by the **Institute of Transportation Engineers (ITE)** in the *Parking Generation* manual, 4th Edition (2010). *ITE Parking Generation* is a compilation of actual parking generation data by land use as collected over several decades by credible sources across the country, and is a common reference manual for determining parking demand characteristics of various land uses.

For the proposed development, the most compatible land use definition provided by ITE is for "Senior Adult Housing-Attached" (Land Use Code: 252), which is defined as follows:

¹ Based upon hourly parking characteristics published in studies by the *Urban Land Institute* and the *Institute of Transportation Engineers* and documented in private studies by DeShazo, multifamily residential parking demand is highest between the hours of 12:00 AM and 6:00 AM.

“Senior adult housing consists of attached independent living development, including retirement communities, age-restricted housing and active adult communities. These developments may include limited social or recreational services. However, they generally lack centralized dining and on-site medical facilities. Residents in these communities live independently, are typically active (requiring little to no medical supervision) and may or may not be retired.”

This category, while not exclusive to affordable housing, is considered an appropriate classification for comparison to the proposed development.

Table 3 summarizes the projected ITE parking demand for the subject property considered here.

Table 3. Projected Parking Based on ITE Parking Generation

LAND USE: 252	AMOUNT	AVERAGE PEAK PERIOD PARKING DEMAND RATE	PROJECED DEMAND (spaces)
Senior Adult Housing—Attached	130 DU	Weekday: 0.59 spaces/DU	76.7
TOTAL:			77 spaces

As shown in Table 3 above, the projected peak parking demand for the proposed senior, affordable multifamily development, based upon published ITE data, justifies a lower parking supply than would be required by direct application of PD 811.

CONCLUSION

The purpose of this study was to analyze the parking needs for the proposed senior, affordable housing, multifamily development in order to establish a reduction of the off-street parking requirements.

This study summarizes the default code parking requirement and the projected parking demand for the proposed 130-dwelling unit development at 4512 West Davis Street in Dallas, Texas. Based upon application of the standard Code parking requirements from PD 811 (§51P.811-119), 166 parking spaces would typically be required for the development. The parking reduction request would allow the Owner to construct 134 parking spaces—a reduction from code of thirty-two spaces, or nineteen percent.

For a senior, affordable housing, multifamily development, such as is planned on the subject site, the parking demand characteristics are notably different than the traditional multifamily land use referenced in PD 811. Published parking demand data for this particular combination of characteristics is not readily available, so this study evaluated the two elements separately. Based upon actual observed parking demand collected by DeShazo, “affordable” multifamily projects generate a peak parking demand of less than 1.0 vehicle per dwelling unit. Additionally, senior housing generates an average peak parking demand of less than 0.6 vehicle per dwelling unit based upon data published by the ITE *Parking Generation* manual, 4th Edition (2010). The proposed

request would generate a parking supply of more than 1.0 spaces per dwelling unit, which is in excess of the projected parking demand for the development under either condition.

As a result of these parking characteristics, the Owner is requesting a Parking Variance that would allow a reduction of thirty-two spaces from the default parking code requirement.

The objective of this memorandum is to provide technical support for the proposed Parking Variance. Based upon the results of this technical analysis and DeShazo's professional judgment and experience from similar, prior parking studies, approval of the parking reduction is recommended.

REQUEST

The subject of this study is a request to construct a parking supply of 134 spaces for the proposed affordable, senior housing, multifamily development. This request is thirty-two spaces less than the base code parking requirement of 166 spaces.

Based upon the findings of this analysis, a parking supply of 134 spaces (or 80.7% of the Code required parking) will satisfy the parking needs for the proposed senior affordable multifamily development. A reduction of thirty-two required spaces (approximately 19.3%) for 4512 West Davis Street is warranted based upon the following considerations specified in the Dallas Development Code §51A-4.311(a)(2):

(A) *The extent to which the parking spaces provided will be remote, shared, or packed parking.*

Off-street parking supply will be provided on-site and will be exclusive for residents and visitors, 24 hours a day.

(B) *Parking demand and trip generation characteristics of all uses for which an exception is requested.*

The projected parking demand takes into consideration the needs of all residents and visitors based upon empirical data collected at various residential developments throughout the Dallas metropolitan area further validated by national published data of more specifically similar land uses published by the ITE *Parking Generation* manual, 4th edition.

(C) *Whether the subject property is part of a modified delta overlay district.*

The requested parking reduction is based upon the site's multifamily parking demand characteristics and is not based upon any special zoning adjustments.

(D) *The current and probably future capacities of adjacent and nearby streets based upon the city's thoroughfare plan.*

The surrounding street system is generally constructed to the anticipated ultimate plans. The site provides ample site access to the surrounding roadway network.

(E) *The availability of public transit and the likelihood of its use.*

The site is currently served by three DART public transit bus routes (404, 542, and 568). In addition, it is located within walking distance of several other bus routes that also connect to DART Rail System's Red Line (Westmoreland Station, Westmoreland Road at Illinois Avenue). Public transit provides an attractive alternative mode of transportation for residents of this multifamily residential development.

(F) *The feasibility of parking mitigation measures and the likelihood of their effectiveness.*

*DeShazo Group, Inc.
March 9, 2011*

DART public transit is a parking mitigation measure as it presents a viable transportation alternative for many residents.

It is our opinion that the requested parking reduction will not create a traffic hazard nor restrict the parking operations during typical peak hours. It is presumed that it is in the best interest of the property owners to provide an appropriate parking environment to their residents.

END OF MEMO

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Senior Affordable Multifamily Development
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SENIOR HOUSING TRIP GENERATION AND PARKING DEMAND CHARACTERISTICS

by

Stephen B. Corcoran, P.E. (M)^a

presented at the
Institute of Transportation Engineers
66th Annual Meeting

INTRODUCTION

As the baby boomer generation ages, special housing projects have been developed for them in lieu of the traditional single-family home or apartment. Congregate care facilities, independent living apartments, assisted-care units, and senior apartments are being marketed, developed, and built to handle the needs of older adults.

The changing lifestyle of older adults affects their transportation needs and usage as well. Trip generation and parking demand within this age group vary significantly from traditional residential uses because residents no longer have to be at work, pick up their children, or do their shopping at specific times. Also many senior communities provide on-site services to meet their residents' needs. This paper will present the author's experiences with senior housing and its trip and parking characteristics along with data on projects in suburban Chicago, Illinois and around the United States.

SENIOR HOUSING TYPES

Older adults have many special needs that change over time. Many seniors are clearly independent and need little assistance other than help with major chores or repairs. They are generally active and healthy. As time goes by, however, their needs change and grab bars become important, as well as, other features such as higher electrical outlets, emergency response systems, and lower reach cabinets. Good nutrition, socialization, and access to medical and supportive care also becomes more important. Several distinct types of housing have been developed to accommodate these needs:

Senior Single Family Homes are senior-only subdivisions which have been developed for retirees ages 55 and up in the southeast and southwest sections of the United States. These developments typically include recreational facilities. Many of the residents are retired.

Senior Apartments are traditional apartment complexes with a minimum age requirement of 55 years old. Some amenities include recreational facilities, security, and special design features. Residents are independent and may still be working.

Independent Living Units are cottages or apartments where older adults live independently but without the worries of maintenance or housekeeping. Medical care can be available at the facility or by visiting medical staff. A variety of amenities are provided for the residents depending on the size of the community.

^a Senior Transportation Consultant, Metro Transportation Group, Inc, Hanover Park, Illinois

Assisted-Care Units are for older adults having difficulty managing in an independent living arrangement but who do not need nursing home care. Assisted-care is usually apartment living with additional staff to help with normal daily activities.

Congregate Care Facilities contain a full spectrum of housing types in one development with town homes or cottages, independent living units, assisted-care units, and nursing care. Congregate Care Facilities (CCF) allow the elderly to age in one place with nursing care available if they need it. This is particularly important for elderly couples wishing to stay together with one spouse needing special care. CCFs are in essence self-contained communities. **Table 1** lists the amenities that are typically available at a CCF.

Table 1

Typical Congregate Care Facility On-Site Services and Facilities

Standard Services	Extra Services	Common Facilities
<ul style="list-style-type: none"> • Main Meal of the Day • 24-Hour Nursing • Daily Check-In • Weekly Laundry • Utilities • Housecleaning • Organized Programs • In Room Food Service • Bus Shuttle • 24-Hour Security • Complete Maintenance • Free Parking • Garbage Collection • Notary Public Service • Supportive Care Nurse • Chaplain 	<ul style="list-style-type: none"> • Breakfast and Lunch • Extended Room Service • Specialized Diets • Guest Meals • Catering • Physician • Podiatrist • Physical/Speech Therapy • Insurance • Chauffeur Service • Garages • Telephone • Cable TV • Photocopying 	<ul style="list-style-type: none"> • Lounge Area • Dining Room • Library • Chapel • Recreation Room • Country Store • Pharmacy • Arts and Crafts Room • Workshop • Cafe • Exercise Room • Beauty/Barber Shop • Bank Branch Office • Solarium • Whirlpool • Outside Patio • Garden Plots

Source: Milwaukee, Wisconsin CCF Brochure

LITERATURE REVIEW

A review was made of available data on senior trip generation and parking demands. Information was obtained from the Institute of Transportation Engineers Trip and Parking Generation Manuals, the author's files, data from other consultants, as well as, information from California, Arizona, and Florida Departments of Transportation. After reviewing the data, it became clear that the amount of data is small and that the definition of senior housing was not consistent among each source. The data did not distinguish between the five categories mentioned previously.

FACTORS AFFECTING TRIP GENERATION AND PARKING

Several factors affect the trip generation and parking demand at any particular facility. These include the number of dwelling units, nursing beds, average age of residents, resident's affluence, number of employees, and available bus shuttle/chauffeur service. More data needs to be collected in order to properly analyze their relationship to trip generation and parking demand. The trip generation rates for individual facilities varied. Insufficient information on all the survey locations made it difficult to statistically draw conclusions on individual impact of those factors.

However, experience has indicated that as the average age of residents increases, the number of trips and parking demand decreases. This is an obvious affect of the aging process. Nursing beds require more staff to service a patient needs than a more independent resident. When the proportion of nursing beds to residential units increases, the amount of traffic and parking generally increase. The economic well being of residents increases the likelihood that they own a car and thus drive and park. Lastly, bus shuttle/chauffeur service will provide an option to the auto for residents keeping traffic and parking rates lower.

DAILY TRAFFIC GENERATION

Information on daily trip ends was obtained from surveys by the California Department of Transportation (Caltrans) and the Florida and Arizona Departments of Transportation. This data generally categorized the facilities as retirement communities but included CCFs, senior apartment complexes, and may have nursing beds. The author's data consisted of one CCF in Pennsylvania. **Table 2** summarizes the trip data and rates. The average trip rate daily varied between 2.78 and 8.91 trips per unit. The variation in rates supports the conclusion that the number of units/beds is not the only variable influencing trip production. The weighted average trip ends were 4.52 trips per unit which included one large development of 3,122 units. Without the 3,122 unit project, the weighted average rate was 5.64 trips per units.

The weighted daily trip generation rate, was 5.64 trip ends a day for senior housing developments. Senior housing generates two-thirds the amount of traffic compared to a typical single-family development. It's closer to other multi-family categories, including apartments (6.47 trips/unit) and condominiums or townhouses (5.86 trips/units). **Table 3** shows the weekly variation in volumes based on one facility. The weekday volumes were consistent. Weekend traffic volumes were slightly lower.

Table 4 illustrates the hourly distribution of traffic throughout an average weekday, Saturday, and Sunday. The peak-hour volumes of the facility occurred at lunch time and mid-afternoon (2:00 to 4:00 PM). Caltrans data indicated that the peak-hour occurred between 11:00 AM and 4:00 PM, depending on the facility. These peak-hour times do not coincide with the peak-hour of adjacent street traffic because the residents do not have or want to travel during the rush hour. Also, the employee shifts are generally off peak. Most facilities are staffed 24 hours a day with a 7:00 AM-3:00 PM, 3:00 PM -11:00 PM, 11:00 PM-7:00 AM shift schedule. Some administrative staff follow a typical 9:00 AM to 5:00 PM shift.

PEAK-HOUR TRIP GENERATION RATES

Table 5 shows the trip generation rates for eight facilities during the morning and evening peak-hour of the adjacent street system. The weighted average trip rate was 0.222 trips per unit/bed in the morning peak and 0.247 trips per unit/bed in the evening peak. Trip rates ranged from 0.085 to 0.450 per unit. The directional splits were 65% inbound and 35% outbound in the morning and 40% inbound and 60% outbound in the evening. Compared to other residential land-uses, senior developments generate significantly less traffic on a per unit basis.

Table 2

Daily Trip Generation Rates for Senior Housing

Source	Number of Dwelling Units	Daily Trips	Trip Rates	
Caltrans	3122	9630	3.09	
	300	830	2.78	
	108	310	2.87	
	76	260	3.42	
	460	2252	4.90	
Florida DOT	366	3262	8.91	
	560	1985	3.55	
	187	1449	7.75	
	120	901	7.51	
	127	561	4.42	
Arizona DOT	125	972	7.78	
	176	855	4.86	
	74	447	6.04	
	60	285	4.75	
	216	1386	6.42	
	175	1058	6.05	
	129	941	7.30	
	112	922	8.23	
	106	820	7.74	
	89	538	6.05	
	81	529	6.53	
	60	494	8.23	
	59	432	7.30	
	Penn. CCF	247	1163	4.71
	Weighted Average	7135	32282	4.52
Without 3,122 units	4013	22652	5.64	
ITE Average Weekday Daily Rates				
Single-Family (Code 210)			9.55	
Apartment (Code 220)			6.47	
Condo/townhouse (Code 230)			5.86	
Congregate Care Facility (Code 251)			2.15	

Table 3

Weekly Volume Distribution

Day of the Week	Percentage
Monday	15%
Tuesday	15%
Wednesday	16%
Thursday	17%
Friday	15%
Saturday	12%
Sunday	10%
Total	100%

Table 4
Hourly Traffic Distribution

Start Hour	Average Weekday	Saturday	Sunday
12:00 AM	1.46%	1.45%	2.76%
1:00 AM	0.07%	0.12%	0.26%
2:00 AM	0%	0.00%	0.26%
3:00 AM	0.12%	0.00%	0.00%
4:00 AM	0.46%	0.00%	0.66%
5:00 AM	0.41%	0.60%	0.39%
6:00 AM	1.94%	2.05%	1.71%
7:00 AM	5.74%	5.06%	3.94%
8:00 AM	6.70%	5.06%	4.99%
9:00 AM	6.19%	5.78%	6.17%
10:00 AM	7.20%	9.40%	7.74%
11:00 AM	9.33%	9.04%	8.53%
12:00 PM	7.05%	8.07%	8.01%
1:00 PM	7.44%	6.27%	4.86%
2:00 PM	9.76%	7.59%	8.40%
3:00 PM	9.54%	10.24%	9.84%
4:00 PM	8.39%	9.40%	9.32%
5:00 PM	5.26%	6.14%	6.96%
6:00 PM	3.14%	3.25%	3.54%
7:00 PM	2.90%	2.89%	4.20%
8:00 PM	2.59%	2.05%	2.49%
9:00 PM	1.10%	1.57%	1.31%
10:00 PM	1.24%	1.33%	1.05%
11:00 PM	1.96%	2.65%	2.62%

Table 5

Peak-Hour Trip Generation Rates

Facility	Location	Occupied Units		Total	AM Peak Volume	Rate	PM Peak Volume
		Dwelling Units	Nursing Beds				
Covenant Village	Northbrook, IL	220	151	371	86	.231	133
Friendship Village	Lombard, IL	620	100	720	86	.120	180
Presbyterian Home	Evanston, IL	312	166	478	92	.193	139
Glenview Terrace	Glenview, IL	243		243			21
Good Shephard Manor	Barrington, IL	102		102	18	.180	17
Mayslake	Oakbrook, IL	630		630	67	.106	75
Leisure Village	New Jersey	200		200	65	.325	62
Pennsylvania CCF		210	37	247	78	.316	111
Totals		2537	454	2991	492		738
Weighted Average Trip Rate						.164	.247
					Inbound Percentage	65%	40%
					Outbound Percentage	35%	60%
<u>Comparison to other ITE Residential Rates</u>							
Single Family Homes (Land Use Code 26)						0.74	1.01
Apartments (Land Use Code 220)						0.51	0.63
Condominiums/Townhouses (Land Use Code 230)						0.44	0.55

PARKING DEMAND SURVEYS

Parking demand characteristics were obtained from a number of surveys conducted in the Chicago metropolitan area. The peak parking demand occurred during the mid-day between 11:00 AM to 3:00 PM corresponding, in part, with the largest employee shift on-site. **Table 6** summarizes those surveys. The peak day of the year is Mother's Day when many facilities run out of visitor parking, according to the on-site staff.

The peak parking demand rates varied between 0.214 and 0.579 vehicles per unit/bed with a weighted average rate of 0.404 vehicles per unit/bed. Employee, resident, and visitor parking is included. This rate is one third to one half the parking rate of other residential uses. Readers should note that the survey sites with the higher parking rates generally have more nursing beds which requires more employees than the residential units.

Table 6
Peak Parking Demand Surveys

<u>Development</u>	<u>Location</u>	<u>Dwelling Units</u>	<u>Nursing Beds</u>	<u>Total Units/Beds</u>	<u>Peak Parking Rate</u>	<u>Peak Parking Demand</u>	
Covenant Village	Northbrook, IL	220	151	371	0.490	182	
Beacon Hill	Lombard, IL	235	23	258	0.565	146	
Friendship Village	Schaumburg, IL	620	100	720	0.390	281	
Presbyterian Home	Evanston, IL	312	166	478	0.579	277	
Glenview Terrace	Glenview, IL	243		243	0.214	52	
Mayslake	Oakbrook, IL	630		630	0.408	257	
<u>EJM Engineering Studies</u>							
Lilac Lodge	Waukegan, IL	203		203	0.315	64	
Deerfield Place	Deerfield, IL	98		98	0.230	23	
<u>ITE Parking Manual, 2nd Ed</u>							
Retirement Community (Land Use Code 250)		500		500	0.270	135	
		3061	440	3501		1417	
		Weighted Average				0.404	
<u>ITE Parking Manual, 2nd Edition</u>							
	Low/Mid-Rise Apartments (Land Use Code 221)				1.21		
	High-Rise Apartments (Land Use Code 222)				0.88		
	Residential Condominium (Land Use Code 230)				1.11		

Conclusions

Based on the analyses and studies for this paper, the following findings were made:

1. The overall category of senior housing should be broken down into at least five categories for trip generation and parking demand purposes. These categories could be:

- Senior Single-Family Housing
- Senior Apartments
- Independent Living Units
- Assisted-Care Units
- Congregate Care Facility

2. Several factors affect the trip generation and parking demand at any particular facility. Any new survey should include the number of dwelling units, nursing beds, average age of residents, resident's affluence, number of employees, and available bus shuttle/chauffeur service. More data needs to be collected in order to properly analyze their relationship to trip generation and parking demand.

3. Daily trip generation rates were found to be 4.52 to 5.64 trip ends a day for senior housing developments. Senior housing generates two-thirds the amount of traffic compared to a typical single-family development. Its daily rates are similar to other multi-family categories, including apartments (6.47 trips/unit) and condominiums/townhouses (5.86 trips/units).

4. Trip generation rates during the peak hour of adjacent street traffic are significantly less because most employees arrive/depart during off-peak periods and residents avoid the peak-hour congestion. The peak hour rates are one-half to one-fourth that of other residential land-uses.

5. The peak-hours of site traffic occurs in the late-morning or early afternoon.

6. The peak parking demand at most senior facilities occurred midday with an average peak demand of 0.40 vehicles per dwelling unit for residents, employees, and visitors. Mother's Day is the highest parking day of the year with many facilities short of spaces for that one day.

References

1. Trip Generation Manual, 5th Edition; Institute of Transportation Engineers; January, 1991
2. Parking Generation Manual, 2nd Edition; Institute of Transportation Engineers; August, 1987
3. Parking Requirements for Retirement Centers Requirements and Demands; EJM Engineering; May, 1987
4. 6th Progress Report of Trip Ends Generation Research Counts; California Department of Transportation; 1965-1970
5. Florida Department of Transportation Trip Generation Data
6. Arizona Department of Transportation Trip Generation Data

Parking Spaces / Community Places

Finding the Balance through Smart Growth Solutions

**Development, Community, and Environment Division (1807T)
U.S. Environmental Protection Agency
Washington, DC 20460**

**EPA 231-K-06-001
January 2006**

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Beyond Generic Parking Requirements

In calculating parking requirements, planners typically use generic standards that apply to individual land-use categories, such as residences, offices, and shopping. The most commonly used guidelines, issued by the Institute of Transportation Engineers in the Parking Generation Handbook (ITE, 2004), are based on observations of peak demand for parking at single-use developments in relatively low-density settings with little transit (Shoup, 2005). In such places, the destinations are widely separated, parking is typically free, and walking, biking, and transit are not available. As a result, planners assume in effect that every adult has a car, every employee drives to work, and every party visiting a restaurant arrives by car. Under these conditions, parking can take up more than 50 percent of the land used in a development (see figure). For more compact, mixed-use, walkable places, these standards end up calling for far more parking than is needed.

A surplus of parking really can be too much of a good thing. It creates a 'dead zone' of empty parking lots in the middle of what ought to be a bustling commercial district or neighborhood. This dead zone means there is less room for the offices and homes that would supply a steady stream of office workers and residents who might patronize businesses in the area -- and less room to cluster other businesses that will attract more foot traffic. Requiring more parking than the market actually demands adds substantial costs to development and redevelopment, and in some cases the added costs will prevent development altogether. For example, the future site of the D'Orsay Hotel in a prime location in Long Beach, California sat for years as a low-revenue parking lot -- every developer who considered building on it was stopped in part by the high cost of building a garage to fulfill the city's minimum parking requirement. It is under development today as a hotel and retail complex in large part because innovative strategies reduced the parking burden on the developer. See page 52 for the full case study.

Most planners surveyed relied on neighboring cities and national handbooks to determine parking requirements. This practice may result in inappropriate requirements if local conditions or policy approaches differ.

— Michael Kodama,
Michael R. Kodama Planning
Associates

Parking requirements are often copied from one jurisdiction to another, and so are remarkably consistent across different cities. Generic standards do not take into account the many highly local variables that influence parking, such as density, demographics, availability of public transit, potential for biking and walking, or the availability of other parking nearby. The obvious results of such rigid requirements are big empty parking lots -- and they can also result in empty buildings. Perfectly useable space in older buildings with limited or no on-site parking may prove unrentable, because the businesses that would like to locate there are unable to meet high minimum parking requirements. The buildings remain vacant, thwarting redevelopment plans (Shoup, 2005).

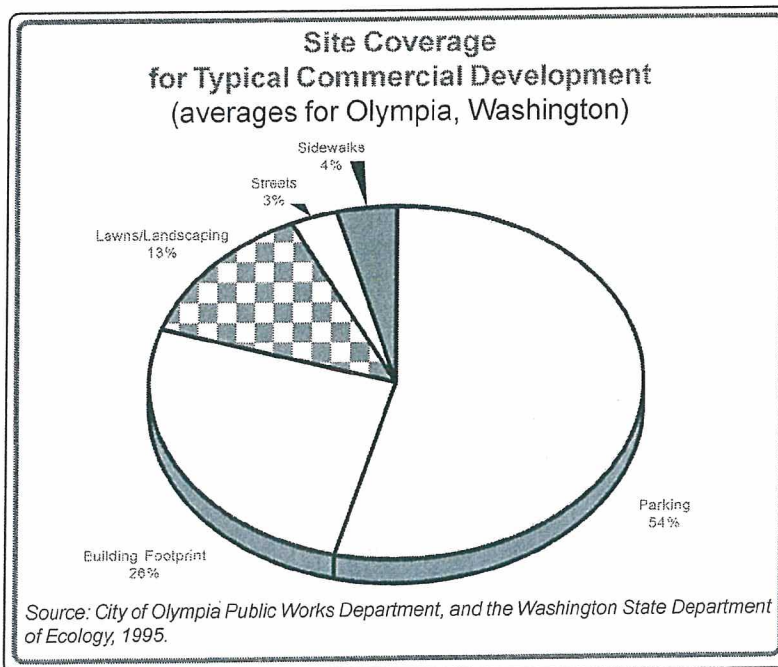
Generic parking standards have simply not kept up the complexity of mod-

ern mixed-use development and redevelopment. But parking requirements can be altered to allow planners to better measure the true demand for parking and to balance parking with wider community goals. This approach entails careful consideration of land-use and transportation characteristics that relate to parking demand. Successful examples consider the following factors.

■ **Development type and size.** Take into account the specific characteristics of the project: is there a large theatre that requires evening parking, or will small shops attract short-term, daytime patronage? Can the two share parking spaces? Parking demand is of course also influenced by the size of the development, which is typically measured by total building square footage.

■ **Development density and design.** Consider the density of the development. Research shows that each time residential density doubles, auto ownership falls by 32 to 40 percent (Holtzclaw et al. 2002). Higher densities mean that destinations are closer together, and more places can be reached on foot and by bicycle—reducing the need to own a car. Density is also closely associated with other factors that influence car ownership, such as the presence of good transit service, the community’s ability to support stores located in neighborhoods, and even the walkability of neighborhood streets.

■ **Demographics.** Consider the characteristics of the people using



In the process of establishing parking requirements, local communities are sometimes engaged in a balancing act. They must consider access, mobility, and traffic safety, but they also must encourage appropriate land use and traffic management, environmental protection, and energy and resource conservation.

— Thomas P. Smith
"Flexible Parking Requirements"
Planners Advisory Service
Report 377

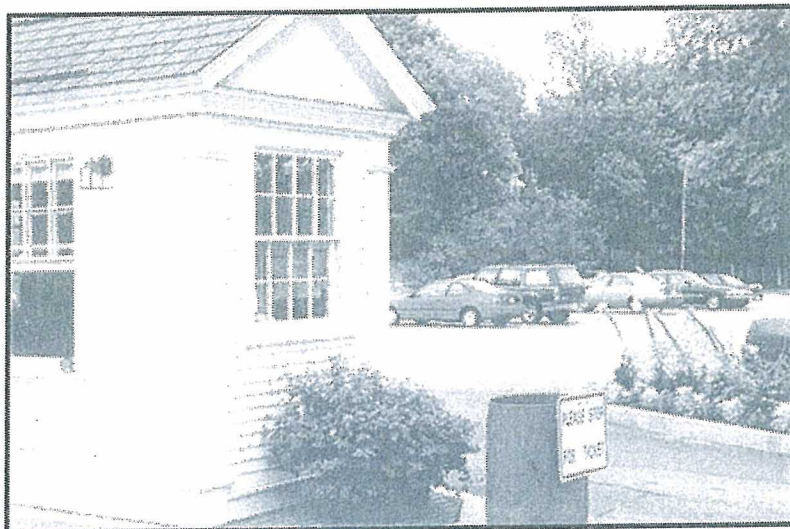
the development, including employees, customers, residents, and visitors. People of different incomes and ages tend to have different car ownership rates.

■ **Availability of transportation choices.** Take into account the modes of transportation available to employees, visitors, and residents. Access to public transportation in a particular development, for example, can reduce parking demand. Walkable neighborhoods and bicycle amenities can also reduce parking demand.

■ **Surrounding land-use mix.** Consider the neighboring land uses and density to better understand parking needs. For example, an office building parking lot will be empty when the restaurant next door is packed, so requiring both to provide for 100 percent of their parking needs simply wastes space.

■ **Off-site parking.** Consider the parking that is already available nearby: on the street, on nearby properties, or in public garages that may be available for users of a new development. On-street parking can be considered to reduce the amount of on-site parking required for new development, or as a reserve should new uses require more parking than expected. On street parking has the added benefit of acting as a buffer between pedestrians and traffic, increasing the attractiveness of walking.

Land use and demographic information are important tools for establishing context-specific parking requirements that better balance supply and demand for parking.



The Costs of Parking

This section describes the costs of providing parking, both in terms of financial and environmental health. While parking is necessary, providing too much of it can exert a high cost, so understanding its impact is important. That impact can vary considerably with the amount and type of parking provided, and the types of development being served.

Financial Costs

The financial cost of providing parking is driven by three key factors: the number of parking spaces required, the 'opportunity cost' of the land used for parking, and the cost per parking space¹. **Parking requirements that assume suburban levels of demand in urban locations may necessitate large surface lots or parking garages, unnecessarily increasing the cost of infill and other compact development.** The opportunity cost is the cost of using a space for parking instead of for a use with higher value. This varies considerably depending on the development context. In infill locations, the opportunity cost can be quite high, as each on-site parking space can reduce the number of new housing units or other users by 25 percent or more (Transportation and Land Use Coalition, 2002).

The cost per space depends on engineering and design considerations. Cost per parking space includes land, construction, maintenance, utilities, insurance, administrative, and operation costs (Tumlin and Siegman, 1993). The per-space costs tend to be higher in infill locations, providing a strong incentive for avoiding a parking surplus. **Towns that are trying to encourage infill development or compact new suburbs can help spur those activities by accurately gauging parking demand.** In general, the following factors affect the cost per space of parking:

- **Structured versus surface parking.** Parking garages are more costly to construct, operate, and maintain than surface parking lots, but can be desirable in urban locations seeking to create a more walkable environment. For example, Shoup (1998) reports construction costs of over \$29,000 per space for a structured garage in Walnut Creek, California, against perhaps \$2,000 per space to construct surface parking. Underground parking structures are more costly to construct than above-ground structures because of the added expense of excavation and required engineering.

Ignoring both the cost of providing parking spaces and the price charged for parking in them, urban planners thus set minimum parking requirements to satisfy maximum parking demand.

— Donald Shoup
Department of Urban
Planning, UCLA

¹ All costs are updated to 2004 dollars. Costs include various components as noted. Where amortized, they assume a 7.5% interest rate over a 30-year period, and annual operating costs.

- **Land cost.** Land costs vary widely across settings (urban/suburban), geographic areas, and location within a particular city. Land costs in urban centers are generally much higher than in suburban areas. For example, in 1997 the cost per square foot of land in downtown Charlotte, North Carolina, was \$121, while suburban land cost \$21 (ULI, 1997). Higher land costs make the efficient supply and use of parking critical to development and redevelopment in urban areas.

- **Configuration and size of parking facility.** Parking structures and lots are more expensive to build and operate on smaller lots and complex land configurations, due in part to economies of scale. For example, smaller garages have higher costs per parking space because of the fixed capital costs (e.g., stairwells, ramps, and elevators) and fixed operating costs. These characteristics—smaller lots and more complex land configurations—are typical of urban areas, making parking more expensive at these locations.



- **Geologic conditions.** Parking structures on land with more sensitive seismic conditions or land with difficult terrain also cost more per parking space because they require more complex engineering and construction design. While geologic conditions vary across the country, developers have a greater choice of sites when considering development in suburban and rural areas. Sites in urban areas are more limited, and terrain with geologic constraints may be more difficult to avoid.

Land and construction costs, which account for most of the costs of parking, vary considerably across cities and parking designs. Construction costs alone also range widely due to building codes, materials, and labor costs, but per space construction costs for structures (above- or below-grade) are typically much higher than for surface lots. Willson (1995) expresses parking costs in terms of a monthly amount that would pay for the land, construction, and operating costs of providing a parking space. The reported monthly cost calculated for six surface parking sites in Southern California ranged from \$50 to \$110 per space, with an average of \$86. The average cost for two sites in Southern California with above ground structured parking was \$175 per space per month. Litman (2004) analyzes cost-recovery thresholds for parking under various scenarios, finding a range from \$20 to nearly \$200 per month to finance, build, operate, and maintain a parking space. With such wide variability, national averages, especially those including land costs, clearly do not have much meaning. This underlines the

importance of looking at costs for a specific area when assessing potential savings from reducing oversupply.

Environmental Costs

In addition to tangible financial costs, parking has 'external' costs that affect the natural environment and the surrounding community, and these are typically not factored into development decisions. Parking lots and garages themselves have a direct impact on the environment, and they can affect the environment indirectly by cutting off transportation choices, encouraging driving that pollutes the environment.

Direct environmental impacts include: degraded water quality, stormwater management problems, exacerbated heat island effects, and excessive land consumption. Construction of surface parking often paves ground that once absorbed and filtered rainwater. This increases stormwater runoff, which can result in more flooding. The oil and other pollutants washed off the parking lot exacerbate water pollution. Dark pavement can artificially raise air temperature, resulting in 'heat islands' that raise air-conditioning bills. In undeveloped areas, forests, wetlands and other natural features should be considered part of a region's "green infrastructure" that process stormwater, clean the air, and provide wildlife habitat. Ensuring that parking areas are sized to a development's actual needs instead of to a generic requirement can preserve this infrastructure.

Parking also indirectly affects the environment, primarily because parking influences how and where people choose to travel. In conventional low-density, single-use development, the required large surface parking lots create places that are not friendly to pedestrians or transit. These places also require more and longer trips between homes, workplaces, schools, shops, and parks. As a result, people make the rational choice to drive almost everywhere -- and these areas register more vehicle miles of travel per capita. Increases in travel rates are associated with increased emissions of pollutants, including carbon monoxide and the pollutants that contribute to dangerous ground-level ozone. Air pollution is associated with asthma and many other health problems, driving up health-care costs.

Compact development that mix uses can reduce the need for surface parking, preserving green infrastructure while also reducing the amount of driving necessary for community residents. By creating an environment that supports the efficient use of parking, such development can also lead to better balance between parking needs and other community goals.

For further discussion of the environmental impact of development patterns, see *Our Built and Natural Environments: A Technical Review of the Interactions between Land Use, Transportation and Environmental Quality* (EPA, 2001a).

Innovative Parking Alternatives

As local governments respond to public demand for better development patterns, many have created alternatives to inflexible minimum parking requirements. The alternatives are aimed at avoiding an oversupply of parking, minimizing parking demand, or using the power of the marketplace to regulate parking. In areas of existing development, avoiding oversupply encourages better use of existing parking facilities and better evaluation of parking needs. Other policies give people an alternative to driving, and so reduce the demand for parking. And market-based pricing systems can help better match demand and supply, ensuring expensive parking spaces are used efficiently. Some of these strategies have lowered total development costs, further encouraging compact, mixed-use development patterns that moderate parking demand.

This section presents a selection of policies that make parking requirements more flexible. It includes a discussion of how and why these alternatives were developed, their advantages and limitations, and real-world examples. Each application has its own unique characteristics, and this diversity makes it impossible to isolate the costs and benefits of specific policies. The discussion presented here is not intended to portray any specific policy as universally applicable. Rather, community context should always be considered when balancing parking with other goals.

Reduce Oversupply

As discussed earlier, in communities working to create mixed-use, compact, walkable places, inflexible application of conventional minimum parking requirements tends to create an oversupply of parking. This creates unnecessary environmental impacts and fi-

Strategies That Work	
Parking Alternative	Example Location
Context-Specific Requirements	Montgomery County, Maryland Milwaukee, Wisconsin Los Angeles, California Eugene, Oregon Seattle, Washington Boston, Massachusetts
Centralized Parking, In-Lieu Fees	Miami, Florida Chattanooga, Tennessee West Palm Beach, Florida
Shared Parking	Long Beach, California Indianapolis, Indiana
Other Supply Strategies	Portland, Oregon Redmond, Washington Iowa City, Iowa
Land Banking and Landscape Reserves	Portland, Oregon Palo Alto, California Carmel, California Cleveland, Ohio Iowa City, Iowa
Car-Sharing	Boston, Massachusetts Washington, DC San Francisco, California Seattle, Washington Boulder, Colorado
Subsidies for Transit	Boulder, Colorado Santa Clara County, California San Bernardino County, California Montgomery County, Maryland
Transit Improvements	Portland, Oregon Chattanooga, Tennessee
Pedestrian and Bicycle Facilities	Schaumburg, Illinois Kendall, Florida
Transportation Demand Management Programs	Cambridge, Massachusetts Seattle, Washington Montgomery County, Maryland
Pricing Strategies	Los Angeles, California Santa Monica, California San Diego, California Pasadena, California

nancial costs. The strategies discussed below can reduce the supply of parking while still effectively meeting demand.

Context-Specific Standards

Setting parking standards to fit the particular context of a neighborhood or development is a challenge planners are just beginning to tackle. As discussed earlier, parking requirements are often applied for each land use city wide, and so lack the flexibility needed to address different parking needs.

A major challenge for city planners is how to make codes more flexible and sensitive to specific local conditions, but still provide the predictability desired by developers. Codifying reductions in parking requirements provides the greatest certainty for governments, citizens and neighbors, and developers, and enables all to plan for balancing parking with other development goals. When the reductions in parking requirements are clearly stated in the codes, developments are less likely to be held up in the permitting process or challenged by local residents. Planners need to develop an understanding of local parking markets, combine this with experience from other settings, and then create local parking requirements. Some of the mechanisms being used are:

- **Transit zoning overlays.** In areas with frequent transit service, especially those served by rail stations, fewer residents, workers, and shoppers require parking. In addition, the density and mix of

uses possible around rail stations can sometimes support market-rate parking, which leads to more efficient use. Many cities find they can reduce minimum parking requirements for certain uses that are within a specified distance of a rail station or frequent bus route. For example, Montgomery County, Maryland reduces parking requirements by as much as 20 percent, depending on distance from a Metrorail station. Parking are only one aspect of transit zoning overlays, which often address issues such as density, design, and allowable uses. Codes may encourage shared parking in transit zones, which accommodates more cars than parking reserved solely for residents and commuters.

Location- and Use-Specific Requirements

Milwaukee, Wisconsin

Milwaukee has some of the lowest city wide parking ratios anywhere in the country. Parking ratios for retail are two spaces per 1,000 square feet, compared to the Institute of Transportation Engineers' standard of one to 300 square feet. For business uses, Milwaukee requires eight spaces for the first 2,000 square feet, and one for each subsequent 1,000 square feet. In the downtown zone, there are no minimum parking requirements for any land use except high-density housing, where the ratio is a very low two spaces per three units. The city generally discourages surface lots within the downtown and dictates that at least 50 percent of the ground floor of parking structures be used for retail.

These policies were enacted in 1986 and strengthened in October 2002 with new credits for transit-oriented development, on-street parking, and shared parking. Developments within a defined geographical area near transit (which encompasses over half of the city area) are granted reductions of up to 15 percent in the minimum requirements. Further reductions are allowed for on-street spaces adjacent to the property (up to a 1:1 space credit), and for shared parking (up to 0.75 space credit for each shared space). One to one credits are also allowed for leased parking spaces in existing lots within 750 feet of the site.

Source: Milwaukee Department of City Development, 2002.

- **New zoning districts or**

specific plans. In compact, mixed-use, walkable neighborhoods and town centers parking requirements can frequently be lower than typical minimum requirements. Some communities have adopted designated zoning districts or neighborhood specific plans to accomplish this. Most commonly, this applies to the downtown; Milwaukee finds that parking and other goals can be met with lower parking requirements than in outlying locations. Some areas waive the minimums altogether, letting the development market decide where and how to build parking. The same techniques can be applied to neighborhoods outside of downtowns that offer frequent transit, such as Seattle's Pike/Pine district. Specific plans, which detail development requirements at the parcel level, are particularly useful to encourage infill development in older neighborhoods or on brownfield sites.

- **Parking freezes.** The amount of parking required can be directly reduced through parking freezes that cap the total number of parking spaces in a particular metropolitan district. Cities with successful parking freezes generally have strong economies and well developed transit systems, and are attractive to tenants, customers, and visitors. Such cities can attract businesses because the benefits of the urban location outweigh the potential drawback of limited parking, and because public transit offers a viable alternative to automobile use. Downtown Boston has had a parking freeze in effect for many years in an effort to control driving and the associated emissions. Downtown San Francisco has applied a cap on commuter parking, as their downtown street network functions at capacity during rush hours, and transit and other travel options are numerous. Jurisdictions using the restrictions generally view each new parking space (commuter spaces in particular) as the generator of one more rush-hour vehicle trip, and want to limit those trips to reduce air pollution and congestion.

- **Reductions for affordable and senior housing.** Successful regions frequently struggle to provide affordable housing, as desirability and supply drive up housing prices. In many of these places, providing housing to lower-income workers and senior citizens can become an important goal. **Since people with lower incomes and older people tend to own fewer vehicles parking requirements can**

Location- and Use-Specific Requirements
Seattle, Washington

Seattle's zoning code grants reductions in minimum parking requirements based on several factors, including:

- Affordable housing. Minimum parking requirements are reduced to between 0.5 and 1.0 space per unit, depending on income, location, and size of unit.
- Senior housing and housing for people with disabilities.
- Car-sharing. Only for multi-family developments that allow dedicated on-site parking for the city's recognized car-sharing operator.
- Location. No parking minimums are set for downtown and they are reduced in mixed-use, dense neighborhoods.

Source: Seattle Department of Transportation, 2001.

be reduced for below-market-rate units and senior housing. This reduces the overall cost of providing such housing, and may increase the number of units that can be provided. Los Angeles grants a reduction of 0.5 spaces per unit for deed-restricted affordable housing units, with further reductions if they are within 1,500 feet of mass transit or a major bus line.

- **Case-by-case evaluation.** Where area-wide or systematic code changes are not possible, reductions in parking requirements can be granted on a case-by-case basis, often on the condition that mitigation measures such as car-sharing (see page 23) are provided. Cities such as Eugene, Oregon specify in their zoning codes that such reductions will be granted subject to a parking study showing that the proposed provision will be adequate to meet demand.
- **Abolish requirements.** Another approach is for cities to simply abolish all parking requirements in neighborhoods that are served by a range of travel options and where surrounding residential areas are protected from spillover parking from other users (Millard-Ball, 2002). This leaves it up to developers—who have a financial interest in meeting tenants' needs while not oversupplying parking—to determine how many spaces are needed.

Maximum Limits and Transferable Parking Entitlements

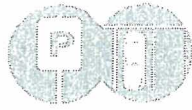
Maximum limits turn conventional parking requirements upside down by restricting the total number of spaces that can be constructed. Planners set maximum limits much as they set minimum requirements. Typically, a maximum number of spaces is set on the square footage of a specific land use. For example, Portland, Oregon, allows buildings in the central business district a maximum of 0.7 parking spaces per 1,000 square feet of office space, and 1.0 space per 1,000 square feet of net building area for retail.

Communities can make maximum parking requirements more flexible by introducing transferable parking entitlements, as in Portland Oregon. The allowed number of parking spaces for a particular development are an “entitlement” that can be transferred or sold to another development if they are unused. This policy enables cities to control the parking supply, without restricting developments that would not be feasible without additional parking. Projects that require more parking can proceed, while those that need less parking can benefit by selling their rights, or negotiating shared parking agreements for their employees or customers.

Portland’s planners are using parking maximums in an attempt to “improve mobility, promote the use of alternative modes, support existing and new economic development, maintain air quality, and enhance the urban form of the Central City” (City of Portland, 1999). By combining maximums with transferable parking entitlements, Portland’s downtown provides ample

The generous parking capacity required by planners often goes unused. Studying office buildings in ten California cities, Richard Willson (1995) found that the peak parking demand averaged only 56 percent of capacity.

— Donald Shoup,
UCLA



Rational Parking

Is it really possible to have too much parking?

Figuring out how much parking to have in a neighborhood is a tricky balancing act. Too little, and prospective customers or residents have difficulty finding spots easily. Too much, and the empty lots are dead zones inviting crime and wasting space that could have contributed to the neighborhood. Further, high parking requirements make homes more expensive, cause higher rents that can make it impossible for local businesses to flourish, and make it harder to design beautiful buildings, parks and streets people enjoy.

Instead of a sea of parking, Great Communities provide only as much parking as is needed, reclaiming public space for parks, plazas, food markets, child care centers, clinics and other services.



Acres of land is wasted on parking lots which could have been dedicated to park land, open space or workforce housing.

Good parking policies tailor the supply to local conditions.

Finding the right balance depends on many factors and vary for different neighborhoods. Unfortunately, too many cities have one-size-fits-all policies designed for low-density areas with no public transit. These policies don't make sense for neighborhoods where people walk and take transit. At the very least, neighborhoods near transit should not require as much parking as the rest of the city. Additional conditions that call for less parking include:

Required Parking Spaces per Unit		
City	Studio	1 BR
Benicia	1	1
Berkeley	1	1
Daly City	1	1.5
East Palo Alto	1	1.2
Emeryville	0.5	1
Fairfield	1	1.33
Healdsburg	1.5	1.5
Livermore	1.5	1.5
Millbrae	1	1.5
Oakland	1.5	1.5
Petaluma	1	1
San Francisco	1	1
San Jose	1.5	1.5
Vacaville	1	1

Parking requirements in select Bay Area communities. Most of these are paired with policies that reduce parking demand:

VIBRANT AND COMPACT NEIGHBORHOODS NEAR TRANSIT

Where we live has a big effect on how much parking we need. People own fewer cars in neighborhoods that have shops and frequent, high quality transit service. For example, residents of San Francisco's wealthy Nob Hill on average own one-fourth as many vehicles as residents in suburban San Ramon. Requiring more parking than is needed increases the cost of housing and undermines the character of those communities.

AFFORDABLE HOUSING Low-income families own fewer cars than middle-income or wealthy families. According to 2000 Census data for the entire Bay Area, 15% of families making between \$25-35,000 did not own any cars.

SENIOR HOUSING Seniors own significantly fewer vehicles and thus generate lower demand for parking. In the Bay Area, households with all members aged 62 and above own 31 % fewer cars than households with no seniors.

Parking needs to be managed and optimized for local conditions. Too much parking can be more harmful than too little.

Reducing parking needs by reducing demand

SHARED PARKING LOTS Place a movie theater next to an office, and they can share. The office building uses the spaces during weekdays, while the theater needs weekend and weeknight parking.

CAR SHARE SERVICES City CarShare partners with home builders to include spots for car-sharing vehicles. This gives many households the convenience of a car while reducing the number of total parking spaces needed.

DESIGN FOR WALKING AND BICYCLING Most people prefer to walk if they can easily do their shopping, pick up a child from child care or meet other basic needs in their neighborhood.

PARKING MAXIMUMS Many communities developing station area plans are adopting parking policies that reflect the transit choices within a station area. People using transit, walking, or biking to their final destinations don't need parking.

UNBUNDLING PARKING COSTS FROM HOUSING COSTS Unbundling means that parking is rented or sold separately, rather than automatically included with buildings space. This allows the developer to make some or all parking optional when selling the units. Reducing the cost per unit by \$20,000 - \$40,000 creates a greater demand for units. This can also apply to rental units, reducing rental cost for residents without cars.



Carshare's prius located in a public parking garage within Library Gardens apartment complex in Berkeley, CA.

Cities that successfully manage parking to preserve Great Communities:

PETALUMA

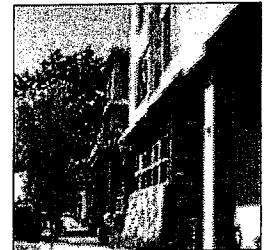
The City's Smart-Code includes ways to reduce parking spaces based in a variety of ways:

- Parking spaces shared between adjacent properties. This includes parking lots within walking distance of the destination to support shared parking garages.
- Paying an in-lieu fee instead of building the spaces.
- Build parking spaces with permeable surfaces for stormwater runoff.



PALO ALTO

The City's zoning codes allow the planning director and the architectural review board to "defer" the standard minimum parking requirements when appropriate, as with transit-oriented affordable housing developments. The City can require the developer to hold open space in "landscape reserve" for additional parking in case the initial parking is insufficient. If parking demand is higher than expected, the open space can be converted to parking.



Checklist to ensure adequate parking supply determined by actual need:

- Are parking requirements lower near transit than in the rest of the city? Are there parking maximums rather than minimums?
- Are there clear policies that create incentives or require the use of Transportation Demand Management TDM measures? Such as in-lieu fees for parking spaces, free transit passes for new residents and employees, or parking studies that measure and monitor actual parking demand?
- Is structured parking encouraged rather than surface lots in high-density areas? Are there shared use parking lots allowing morning uses to mix with evening uses?



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CNU 19: GROWING LOCAL

Parking Requirements and Affordable Housing



How can developers of low- and mixed-income housing convince local officials to reduce minimum parking requirements?

Developers of low- and mixed-income housing nationwide often find themselves hamstrung by local requirements for minimum parking allotments. By mandating a minimum amount of parking, local governments often require the production of significantly more parking than residents actually need. This reduces the amount of housing that can be produced on a given site, limits additional amenities that could otherwise be provided and unnecessarily increases the cost of housing.

Quick Facts

- 22 percent of renting households do not own a car. (2000 Census)
- Only 31 percent of renting households own more than one car. (2000 Census)
- Apartment residents own, on average, one vehicle per occupied apartment, less than half the ownership rate for occupied single-family homes. (1997 AHS)
- 26.5 percent of urban households with incomes below \$20,000 a year do not own a car. (2001 NTHS)

Resources

[The Residential Parking Toolbox](#) – An excellent collection of resources and information from the Non-Profit Housing Association of Northern California.

[Tools for Mixed-Income TOD](#) – A report from the Center for Transit-Oriented Development with a section on parking reductions.

Data

[National Household Travel Survey](#) – The 2001 edition of an ongoing survey sampled 26,000 households nationwide.

[U.S. Bureau of Labor Statistics Consumer Expenditure Survey](#) – Offers data on vehicle ownership and fuel consumption by income class.

[The Metropolitan Travel Survey Archive](#) – Data from 30 metropolitan areas can be downloaded and processed for significant comparisons on a project-by-project basis.

Additional Research

[Daily Travel by Persons with Low Income](#) – An inquiry into the travel behavior of low income households, using data from the 1995 National Household Transportation Survey.

[Housing Shortage/Parking Surplus](#) – A report from the Transportation and Land-use Coalition examining how changes to minimum parking requirements could eliminate unnecessary parking spots, making additional land available for housing.

[Parking Requirement Impacts on Housing Affordability](#) – A report prepared for the Victoria Transport Policy Institute laying out the costs and consequences of parking requirements.

[Parking Management: Strategies, Evaluation and Planning](#) - A report addressing specific strategies for creating efficient parking solutions for a range of situations, courtesy of the Victoria Transport Policy Institute.

[Reducing Housing Costs by Rethinking Parking Requirements](#) – A report from the San Francisco Planning and Urban Research Association.

Lave, Charles and Richard Crepeau. 2004. "Travel by Households Without Vehicles," in Travel Mode Special Reports: 1990 NPTS Report Series, Chapter 1, pp. 1-47. U.S. Department of Transportation, Federal Highway Administration, Washington D.C., December 1994.

Pucher, John. 2003. "Socioeconomics of Urban Travel: Evidence from the 2001 NHTS," Transportation Quarterly, Vol. 57, No. 3 (Summer 2003), pp. 49-77.

Raphael, Steven and Lorien Rice. 2002. Car ownership, employment, and earnings. Journal of Urban Economics, 52 (2002) 109–130.

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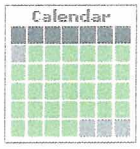
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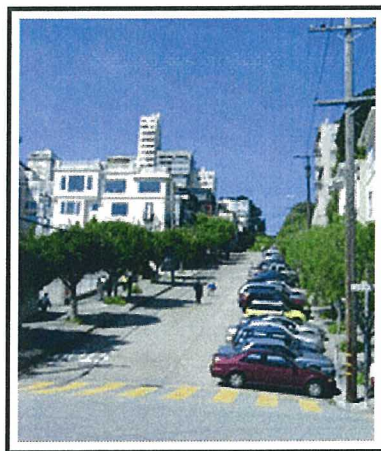


Breakthroughs

March 2008

Volume 7, Issue 2

Parking Regulations and Housing Affordability



Many communities have begun taking a harder look at minimum parking requirements and their effects on neighborhood design, transportation, and housing affordability. This article briefly explores the link between minimum parking requirements and housing affordability, and highlights three cities that have revised their parking codes in an attempt to promote compact, affordable, and transit-oriented communities.

Minimum Off-Street Parking Requirements

Minimum off-street parking requirements are an integral component of zoning codes that are adopted by communities to avoid traffic congestion and overcrowded on-street parking. They are typically based on parking generation rates published by the [Institute of Transportation Engineers \(ITE\)](#) and may result in [surplus parking](#).

A typical parking space, including aisle area required to maneuver, takes up [300 square feet](#). This translates to increased development costs, especially in areas where real estate prices are high. Though usually hidden, these development costs are nonetheless passed on to the homebuyer.

Some communities are reducing minimum off-street parking requirements as an incentive to promote the development of affordable housing. [Studies](#) show a strong correlation between household income and vehicle ownership. Since low- and middle-income residents may own fewer or no vehicles, reducing parking requirements for affordable housing developments will decrease the cost of housing and make additional space available to increase the number of units.

Strategies for parking management being adopted by some cities include the elimination or reduction of minimum parking requirements based on density, car ownership rates, and availability of public transit; adoption of maximum parking requirements; allowing shared parking; and unbundling the cost of parking from the price of housing.

San Francisco, California

San Francisco is a transit-friendly city that has retained its historic character and the scale of its walkable neighborhoods. According to the 2000 Census, 30 percent of all households in San Francisco do not own a car and more than 50 percent of households living within transit-rich areas are car-free. A 1997 University of California, Berkeley [study](#) found that single-family housing without off-street parking sold for an average of \$46,391 less than housing with off-street parking — affordable to 24 percent more area households.

San Francisco adopted legislation revising its parking requirements in an effort to reduce traffic congestion and increase affordable housing in its Downtown Commercial (C-3) zoning districts. Revisions eliminated minimum parking requirements for downtown housing, and established by-right maximum parking of [one space for every four units](#). Maximum parking limits restrict the

number of spaces that can be provided by a developer. Other strategies include car-sharing programs and requiring developers to unbundle the cost of parking from the price of housing. Reduced parking requirements for Rich Sorro Commons, a [mixed-use project](#) in the city with 100 affordable units for low-income families, resulted in additional space for a childcare center and retail stores, generating about \$132,000 in additional revenue. The childcare center is especially beneficial to low-income families, and the additional revenue makes housing units more affordable.

Seattle, WA

Half the households in [Press Apartments](#) on Capitol Hill's Pine Street in Seattle, Washington do not own cars, leaving 60 percent of parking spots that were provided to meet the city's minimum parking requirements sitting empty. In 2006, Seattle reduced parking required in mixed-use neighborhoods, and eliminated minimum parking requirements in downtown areas to increase housing opportunities and encourage pedestrian-friendly neighborhoods. Minimum parking required for affordable housing was reduced to [0.33 – 1.0](#) space per unit, depending on the location and size of the unit. In addition to adopting maximum parking requirements for downtown office spaces, the city allows reduced parking for elderly and disabled housing, and for multifamily developments with car-sharing programs.

Portland, Oregon

Portland, Oregon has implemented various parking management strategies designed to increase housing density, promote transit-oriented neighborhoods, and support existing and new economic development. Portland [eliminated minimum parking requirements](#) in the central city district and for sites located within 500 feet of a high-capacity transit station. The city's zoning ordinance specifies maximum parking requirements for areas outside the central city district, which vary depending on the use and the distance from a light rail station. Other parking measures include shared parking, and reduction from minimum requirements for car sharing, transit access, and availability of bicycle parking. Two mixed-use projects located outside Portland's central city, [Buckman Heights and Buckman Terrace](#), were able to keep development costs low and increase the number of affordable housing units by utilizing the city's reduced parking requirements.

Conclusion

At a time when communities across the nation are struggling to meet demand for affordable housing, minimum parking requirements that do not reflect actual need decrease affordability by increasing housing costs and reducing the amount of land available for housing. Tailoring parking requirements to reflect car ownership rates and availability of transit options will promote compact, pedestrian-friendly, and affordable neighborhoods.

Indiana's Efforts to Increase the Affordable Housing Supply



Although the state of Indiana enjoys a high rate of homeownership, housing affordability is an ongoing issue, and the focus of many state government efforts. This article discusses legislation adopted by Indiana to increase homeownership and promote housing affordability by protecting manufactured housing communities, increasing the availability of housing finances, and establishing property tax deductions.

Protecting Manufactured and Modular Housing

Senate Bills 0306 and 0334 became effective in 2005 and 2007, respectively, to allow flexibility within land use regulations to preserve manufactured housing communities and protect modular housing, both of which are significant sources of affordable housing. [Senate Bill 0306](#) recognizes manufactured housing as suitable and necessary dwelling units in Indiana. Many local ordinances may not permit a nonconforming manufactured housing community to retain its existing status upon undergoing modifications. The bill allows manufactured housing communities to be expanded or modified without losing their status under the local ordinance, even when a community is categorized as nonconforming. [Senate Bill 0334](#) expands protections for modular homes by stating that modular homes may not be restricted from being assembled or installed

on a property, unless the restrictive covenants or deeds apply to all residential structures in a subdivision.

Funding for Affordable Housing

[Article 20, Title 5](#) of the Indiana Code includes provisions to lower the costs of financing homeownership, stimulate construction of new housing, improve existing housing, and promote economic integration. One such provision is the [Indiana Housing and Community Development Authority \(IHCDA\)](#), created by the Indiana General Assembly in 1978 to promote safe, sanitary, and affordable housing for low-income families. To accomplish its missions, the IHCDA issues state bonds, makes loans, acquires property, provides technical and advisory services, and contracts with other agencies that develop affordable housing. In addition, the IHCDA administers the Affordable Housing and Community Development Fund (AHCDF), which was established in 1989 to provide loans and grants for a broad range of programs that involve construction, preservation, and rehabilitation of affordable housing.

The programs funded by AHCDF must support housing for low-income families earning up to 80 percent of the area median income, with at least half of the beneficiaries living at or below 50 percent of the area median income. Rental housing must be available to low- and very low-income families for a minimum of 15 years. Since its inception, the housing fund has executed close to \$20 million in loans and \$1.5 million in grants, enabling the development of over [1,400](#) affordable housing units.

Property Tax Deductions

[Title 6, Article 1.1](#), Chapter 12 of the Indiana Code includes provisions to reduce the property tax impact on homeowners. This legislation offers tax relief to homeowners for the rehabilitation of property in the form of deductions based on the increased value of a rehabilitated home or residential structure. Rehabilitation includes any remodeling, repair, enlargement, or extension of a property. Deductions can be taken annually for a maximum of five years and amount to 50 percent of the increased assessed value resulting from rehabilitation, provided the cost of the rehabilitation on a property is upwards of \$10,000. Deductions are capped at \$124,800 for single-family homes and at \$300,000 for other housing types.

The state also provides tax deductions on rehabilitated properties located in designated residentially distressed areas. To be designated as a residentially distressed area, a region has to meet certain requirements as defined in [Indiana Code 6-1.1-12.1](#). For a single-family dwelling, the amount of the deduction is equal to the assessed value of improvements made to the property after rehabilitation, capped at \$74,880. These tax deductions are meant to renew interest in existing and older housing stock to help maintain the supply of affordable housing throughout the state.

To further the state's goal of increasing housing affordability, Governor Mitchell E. Daniels, Jr. signed [legislation](#) on March 19, 2008 that will provide property tax relief and protection to homeowners. Homeowners will see an immediate property tax cut of more than 30 percent. Starting in 2010, property taxes will be capped at one percent of the assessed value for single-family homes and at two percent of the assessed value for apartments. Assessing different classes of property at different rates is expected to help maintain the affordability of different housing types. The tax cuts will be funded in part with a one percent increase in the state sales tax.

Conclusion

Indiana has adopted legislation designed to meet a wide spectrum of the state's housing needs. By offering tax deductions on rehabilitated properties and allowing flexibility in regulations for manufactured housing communities, the state is ensuring the present and future affordability of the existing housing stock. Provisions within the state housing funds help low-income families find affordable homes and attain the goal of homeownership.

Incentive Zoning

Zoning incentives first came into use [during the late 1950s](#) to allow more development flexibility during a time when zoning codes strictly separated land according to use. Concerned about the exclusionary practices that resulted from rigid forms of land planning



(including large lot sizes, minimum floor areas, and limitations on housing types), public officials have instituted incentive programs to improve city infrastructure and include affordable housing without having to spend public funds. This article will further describe incentive zoning, and highlights King County, Washington's successful implementation of incentive zoning principles to further affordable housing goals.

What is Incentive Zoning?

[Incentive zoning](#) is a voluntary program in which development incentives (such as density bonuses, reduced parking requirements, or fee waivers) are offered to private developers in exchange for providing a public benefit. Several types of public benefits can be called for in an incentive zoning ordinance, but usually include historic preservation, public infrastructure improvements, open space conservancy, the inclusion of public art, or an increase of affordable housing units. For the purposes of this article, we will focus on incentives that target increasing the affordable housing supply.

King County, Washington's Incentive Program for Housing Developers

With over [1.8 million people](#), King County is the most populous county in the state of Washington. Located along Puget Sound, the scenic views and bustling metropolitan areas make this region a desirable place to live for many young professionals. However, in most recent years, King County experienced a significant [increase in the cost of housing](#), pricing many median-income households out of the market. For this reason, the county established the following [voluntary incentive-based programs](#) to encourage the development of affordable housing:

Reduction of Parking Requirements: Benefit units, also referred to as affordable units, are allowed a 50 percent reduction of onsite [parking requirements](#) as compared to what would normally be required of a market rate unit. If 100 percent of the units are affordable, only one off-street parking space is required per benefit unit.

Impact Fee Waivers: School and road impact fees are waived for rental units that are affordable to households at or below 50 percent of the median income. The same fees are also waived for affordable homeownership units that serve households at or below 80 percent of the median income; these units must remain affordable for a period of 15 years.

Surplus Property for Affordable Housing: In 1996, the Metropolitan King County Council unanimously approved a county ordinance allowing surplus county property to be sold for affordable housing purposes. The land is available to both for-profit and nonprofit developers.

Density Bonus Program for Affordable Housing: King County's [Density Bonus Program for Affordable Housing](#) encourages private developers to build affordable housing units by offering a calculated increase in the number of units, over and above what would normally be allowed in a specified zone. The bonus range is calculated based on the number of benefit units included in a project, the income level that the benefit units are intended to serve, and in the case of ownership benefit units, the number of years the benefit unit is to remain affordable. The program allows .75 to 1.5 bonus units per benefit unit; however, projects that are 100-percent affordable are allowed 2 bonus units.

Conclusion

King County continues to address inflated housing prices by offering incentives to affordable housing developers. In so doing, the density bonus program, impact fee waivers, and reduction of parking requirements have generated over 130 affordable units to date, while the surplus property incentive has produced over 400 affordable units. The county has proven that voluntary programs can be successful when a community implements planning techniques that best suit their individual needs.



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Parking Requirements Guide For Affordable Housing Developers

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02.17.04

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Parking Requirements and the Cost to Affordable Housing

Fear of traffic congestion and overcrowded street parking has led many cities to establish minimum parking requirements calling for developments to provide often excessive amounts of off-street parking. Aside from creating excess parking and adding to congestion by encouraging automobile usage, parking requirements have a tremendous negative impact on development of all kinds, especially affordable housing.

Problems for Affordable Housing Developers

- **Increases Development Costs** – Parking requirements drive up the cost of development, resulting in less units of housing. **Needing to spend more on parking means less funds available to provide housing. Some developments end up having more space for cars than for people.**
- **Reduces the Potential for Other Amenities and Uses, Wastes Land** – Parking requirements also mean that less money and land is available for other purposes. **Childcare facilities, community rooms, and play areas may all be sacrificed in order to accommodate parking.** The possibility for mixed-use, such as ground-floor retail, are also reduced, leaving other community needs unmet in the name of parking.
- **Less Attractive Designs** – Meeting parking requirements becomes a focal point in the design process and eliminates opportunities to incorporate open space. **With less parking to consider, a building can be designed that more reflects a neighborhood's context and needs.**

Is All This Parking Needed?

No. Parking requirements have largely been arbitrarily determined and do not usually reflect the verifiable parking needs of the people who will make use of a development.

- Parking requirements have often been set using a “one-size fits all” approach using information gathered during peak periods at developments with ample parking in areas with few public transit options.
- **The likely residents of affordable housing do not require a great deal of parking.** Studies show that the correlation between income and vehicle ownership is strong, with the likelihood of owning more than one vehicle increasing with income. **Low-income families, seniors, and special needs populations are less likely to require the use of more than one parking space, if that at all.** The need for parking also decreases for residents in dense areas near transit.

Resources

Planning for Residential Parking: A Guide for Housing Developers and Planners.
Website created by NPH to help developers be more effective in arguing for reduced parking.
Contains data, recommendations, and a model for determining the amount of parking
needed by a specific site.
<http://dcrp.ced.berkeley.edu/students/russo/parking/Developer%20Manual/index.htm>

Donald Shoup
Professor, Urban Planning. UCLA.
Has written numerous reports regarding parking requirements. Argues for reduced parking
requirements for numerous developments, including affordable housing.
shoup@ucla.edu

Reports

Parking Requirement Impacts on Housing Affordability
Todd Litman, Victoria Transport Policy Institute. Victoria, B.C., Canada, 1999.
www.vtpi.org/park-hou.pdf

Pavement Busters Guide: Why and How to Reduce the Amount of Land Paved for Roads and
Parking Facilities
Todd Litman, Victoria Transport Policy Institute. Victoria, B.C., Canada, 2000.
www.vtpi.org/pav-bust.pdf

Smart Growth Zoning Codes: A Resource Guide
Local Government Commission. Sacramento, 2003. To order a copy, visit www.lgc.org

Travel Characteristics of Transit-Oriented Development in California
Hollie Lund (CSU Poly, Pomona), Robert Cervero (UC Berkeley), Richard Wilson (CSU Poly,
Pomona). California, 2004. Please contact SCANPH for a copy.

Rethinking Residential Parking: Myth & Facts
Non-Profit Housing Association of Northern California (NPH). San Francisco, 2001.
www.nonprofithousing.org/actioncenter/toolbox/parking/mythsandfacts.pdf

Reducing Housing Costs by Rethinking Parking Requirements
San Francisco Planning and Urban Research Association (SPUR).
San Francisco, 1998. www.spur.org/documents/spurhsgpkg.pdf

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Reports, cont.

Buying Time at the Curb

Donald Shoup, UCLA Department of Urban Planning. Los Angeles, 2003.
www.sppsr.ucla.edu/up/webfiles/buyingtime.pdf

The High Cost of Free Parking

Donald Shoup, UCLA Department of Urban Planning. Los Angeles, 1997.
www.sppsr.ucla.edu//dup/people/faculty/Shoup%20Pub%204.pdf

In Lieu of Required Parking

Donald Shoup, UCLA Department of Urban Planning. Los Angeles, 1999.
www.sppsr.ucla.edu//dup/people/faculty/Shoup%20Pub%202.pdf

The Trouble With Minimum Parking Requirements

Donald Shoup, UCLA Department of Urban Planning. Los Angeles, 1999.
www.sppsr.ucla.edu//dup/people/faculty/Shoup%20Pub%203.pdf

Housing Shortage/Parking Surplus: Silicon Valley's Opportunity to Address Housing Needs and Transportation Problems with Innovative Parking Policies

Transportation and Land Use Coalition. San Jose, 2002.
www.transcoalition.org/reports/housing_s/housing_shortage_home.html

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Best Practice Policies

Here is a quick list of jurisdictions and practices that can be used as examples:

Policy	Places	Descriptions
Combined Reductions in Parking Requirements for Affordable Housing and Proximity to Transit	City of Los Angeles	See Next Page
	City of San Diego	Parking requirements reduced by .25 spaces per dwelling unit for <i>Transit Area</i> or <i>Very Low Income</i> housing (Municipal Code 142.05)
Parking Requirement Reductions for Affordable Housing	Santa Monica	Reduces parking for two bedroom affordable housing units from 2 spaces per unit to 1.5 spaces per unit. (Section 9.04.10.08.040)
Using Square Feet Rather Than Bedrooms for Parking Requirements	City of Berkeley	In R-4 district, parking requirements are 1 per 1,000 ft of gross floor area. This reduces the penalty that minimum parking requirements typically have on smaller units. (Section 23D.40.080)
Lower Parking Requirements in Downtowns with Higher Densities and Better Transit Service	San Francisco	In RC-4, RSD and C-3 Districts (except Van Ness Special Use District), parking requirement is reduced to 1 space per 4 units from 1 space per unit. (Article 1.5. Section 151)
	Oakland	For multi-family housing, parking ratios are 1 per unit in higher intensity areas versus 1.5 per unit in other areas. (Municipal Code 17.116.060)
Lower Parking Requirements for Unassigned Parking Lots versus Assigned Parking Spaces	San Jose	For 1 bedrooms and studios only, San Jose has a 0.5 spaces per unit reduction in MPRs when a facility is "All Open Parking" vs. "One-Car" or "Two-Car Garage" (Municipal Code 20.12.215)
	Sunnyvale	If open lot, parking requirements are 0.3 to 0.4 spaces per unit lower than developments using one-fully enclosed garage. (Municipal Code 19.46.050)
Allowing Residential Development Managers to Purchase Annual Transit Pass for All Residents at a Discount	Santa Clara County - Valley Transportation Authority " Residential Eco-Pass "	Pass is between \$20 and \$80 per year per person depending on development size and location.
"By-right" reductions in parking requirements for Senior and disabled housing	San Francisco	One-fifth the regular parking requirement for housing specifically designed for and occupied by senior citizens or physically handicapped persons. (Article 1.5. Section 151)
	Berkeley	25% reduction of parking requirement for housing exclusively for persons over the age of sixty-two (62). One space per 5 residents for nursing homes. (Section 23D.40.080)
Discretionary reductions in parking requirements for senior and disabled housing.	Concord	If developer can demonstrate that an apartment project for residents with special needs will not generate a need for as much parking, approving bodies have the authority to reduce the number of required parking spaces. (Section 10825.A3)

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Parking Requirement Impacts on Housing Affordability

18 February 2011

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Current development practices result in generous parking supply at most destinations, which reduces housing affordability, increases vehicle ownership and stimulates sprawl. This is regressive, since lower-income households tend to own fewer than average vehicles, and unfair, because it forces residents to pay for parking they don't need. Alternative policies can increase housing affordability and help achieve other transportation and land use planning objectives.

Abstract

Current zoning laws and development standards require generous parking supply at most destinations, forcing people who purchase or rent housing to pay for parking regardless of their needs. Generous parking requirements reduce housing affordability and impose various economic and environmental costs on society. Based on typical affordable housing development costs, one parking space per unit increases costs by about 12.5%, and two parking spaces increase costs by about 25%. Since parking costs increase as a percentage of rent for lower priced housing, housing represents a larger portion of household expenditures for poorer households, and vehicle ownership increases with income, parking costs are regressive and unfair to many lower-income households that own fewer than average cars. Current parking standards are an ineffective mechanism for matching parking supply with demand because the number of vehicles per housing unit varies significantly between households and over time. Various parking management strategies can increase affordability, economic efficiency and equity.

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Preface

Hey, I've got a terrific idea! Let's pass a law requiring all residential buildings to have gasoline pumps that provide free fuel to residents and their guests. Fuel costs would be incorporated into residential rents. Think of the benefits! No more worry about money to pay for gas. No delays at gas stations. Everybody would be better off, especially poor folks. Great idea, right?

Wrong. It's a foolish idea. Somebody would have to pay for the pump and gasoline. It would increase everybody's housing costs. It would be unfair to anybody who drives less than average, who would be forced to subsidize their neighbors' gasoline consumption.

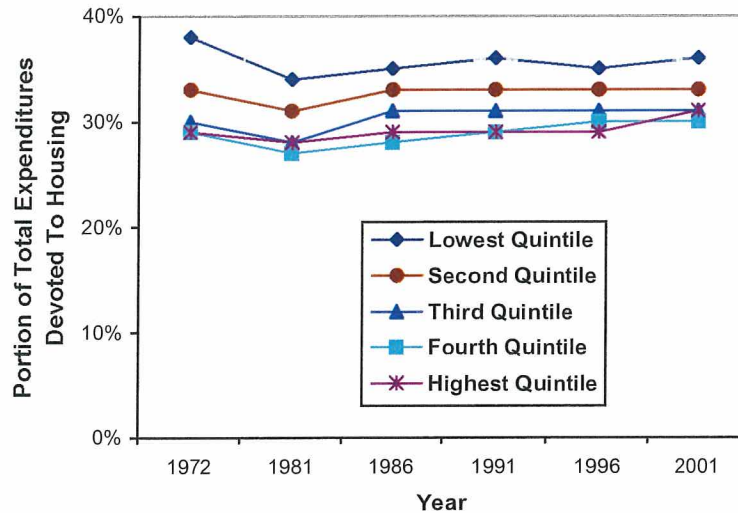
Free gasoline would also encourage wasteful habits. It would increase motor vehicle use, leading to more congestion, pollution, accidents, and sprawl, and it would continue the decline in non-automotive transportation choices, leaving non-drivers worse off. The gasoline tanks would take up space. Gasoline spilled from the pumps would degrade the environment.

Although requiring free gasoline is obviously unfair, wasteful and foolish, it is economically little different from current residential parking standards. Both residential parking and gasoline typically cost about \$50 per month per automobile. Current practices of requiring generous free residential parking contradict society's goals to provide affordable housing, reduce environmental impacts, conserve resources and develop a more efficient and diverse transportation system.

Introduction

Adequate housing is essential for individual and community welfare. There are few trends more tragic than the growing housing problems many people face. An unacceptable number of people are homeless, and many lower-income households devote an excessive portion of their income to housing.

Figure 1 Housing Portion of Consumer Expenditures (BLS, Various Years)



This figure shows the portion of household expenditures devoted to housing by income quintile. Housing averages more than a third of expenditures for the lowest income quintile households.

This report examines the impacts of residential parking requirements (the number of off-street parking spaces mandated at a particular location) on housing affordability. Increasing parking requirements increase housing development costs, which has reduced the supply of lower priced housing and raised costs to consumer. This report does not question the need for some off-street parking. The question issue is how best to determine parking requirements and manage available parking supply. It describes more efficient and equitable strategies that support social and environmental goals.

The parking problem is ultimately simple. Motorists have come to expect generous amounts of free parking at most destinations, and planning practices attempt to provide this. The result is more-than-adequate parking supply at most destinations, but high costs in terms of resources consumed and distortions to development patterns. Current parking practices are comparable to about a 10% tax on development, and much more for lower-priced housing in areas with high land costs. These practices are regressive because lower-income people tend to own fewer than average vehicles: we force five lower-income households to purchase more parking than they need, to insure that one higher income household can park all of its vehicles with no extra cost. Described more positively, more efficient parking practices can provide large savings, increased affordability and improved community design.

Current Residential Parking Requirements

Automobiles typically spend 95% of their existence parked, using either on-street parking supplied free by the community or privately supplied off-street parking. Since on-street parking is an expensive and limited public resource it seems fair to mandate off-street parking. Most local governments require building owners to provide a certain minimum amount of parking based on the assumption that buildings create parking demand. Building owners are forced to include parking costs when selling or renting housing.

Table 1 **Typical Parking Standards** (“Parking Evaluation,” VTPI, 2005)

Housing Type	Spaces Per Unit
Single family	2.0
“Efficiency” apartments	1.0
1 to 2 bedroom apartments	1.5
3+ bedroom apartments	2.0
Condominiums	1.4

These standards are considered sufficient to meet typical residential parking

These parking requirements are based on recommended standards published by professional organizations such as the *Institute of Transportation Engineers* (www.ite.org) and the *American Planning Association* (www.planning.org). Table 1 shows typical recommended off-street standards. Many municipalities impose even higher parking requirements than these recommended standards, as illustrated in Table 2. These standards tend to be excessive in many situations, resulting in parking facilities that are seldom or never fully used, particularly in areas where per capita vehicle ownership and use tends to be low (Shoup, 1999).

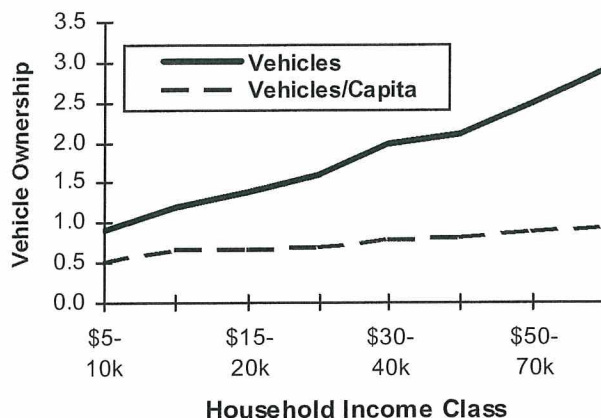
Table 2 **Typical Residential Off-Street Parking Standards** (Stover & Koepke, 2002)

<p><i>Multifamily, Studio</i> “One space per dwelling unit.” (Orange Co., CA) “1.2 spaces per unit.” (Bellevue, WA) “1.25 per dwelling unit.” (Savannah, GA)</p> <p><i>Multifamily, One Bedroom</i> “One space for each dwelling.” (Bay City, MI) “1.5 spaces for efficiency units.” (Schaumburg, IL)</p> <p><i>Multifamily, Two Bedrooms</i> “1.6 spaces per unit.” (Bellevue, WA) “1.75 spaces per dwelling unit.” (Savannah, GA) “Two spaces per dwelling unit.” (Hillsborough, FL)</p> <p><i>Multifamily, Three Bedrooms</i> “1.8 spaces per unit.” (Bellevue, WA) “2.33 spaces per unit.” (Lake Forest, IL)</p> <p><i>Multifamily, Four Bedrooms</i> “Two spaces per unit.” (Albany, OR)</p>	<p><i>Manufactured Housing</i> “One space per unit.” (Fairbanks, AK) “1.25 spaces per mobile home site.” (Durham, NC) “1.5 spaces per unit.” (Albemarle Co. VA) “Two spaces per unit, plus one per five units for guest parking.” (Prescott, AZ)</p> <p><i>Townhouse</i> “1.5 spaces per dwelling unit.” (Clifton Forge, VA) “Two spaces per dwelling unit.” (Lexington Co. SC) “2.25 spaces for each dwelling unit.” (Plano, TX)</p> <p><i>Single Family</i> Nearly all codes require two off-street spaces per unit. “Detached two spaces per dwelling if access to the lot is on a public street; 2.5 spaces per dwelling if access to the lot is from a private street, common drive, or common parking court.” (Leesburg, VA)</p>
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Parking Demand by Households

Automobile ownership varies significantly, and is affected by demographic, geographic and management factors (“Parking Evaluation,” VTPI, 2005; Litman, 2006). Twelve percent of U.S. households do not own a motor vehicle, with higher rates of zero-vehicle households in larger cities and lower-income communities (BLS, 2003). Motor vehicle ownership rates tend to increase with income and household size, as indicated in figures 2 through 5 (also see Rice, 2004; CNU, 2008).

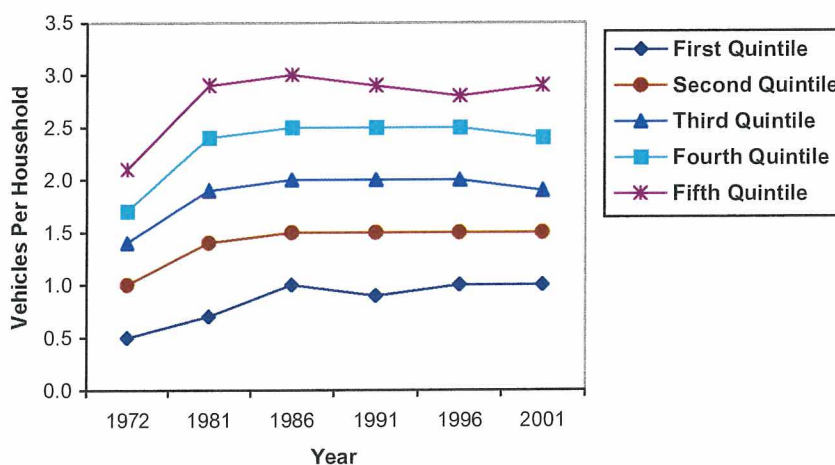
Figure 2 Vehicle Ownership by Household Income (BLS, 2003)



Lower income households own fewer automobiles than wealthier households.

Figure 3 shows how per household vehicle ownership varies by income class and over time. Average vehicle ownership rates grew during the 1970s and 1980s, but this leveled off and even declined in some classes during the 1990s.

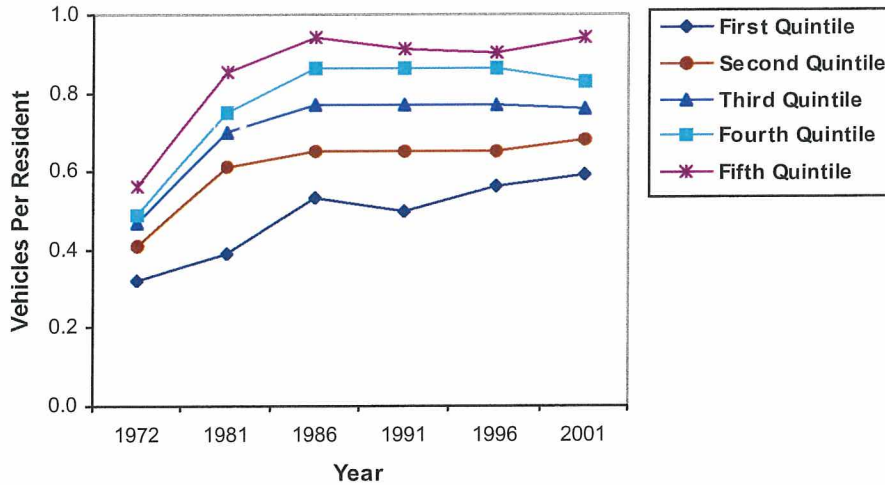
Figure 3 Vehicles Per Household By Income Class (BLS, Various Years)



This figure shows how household vehicle ownership varies by income. Vehicle ownership grew during the 1970s, but has since leveled off and even declined for some income groups.

Differences in vehicle ownership between different income classes results, in part, from differences in household size, since household population increases with income. Figure 4 compared vehicle per household resident.

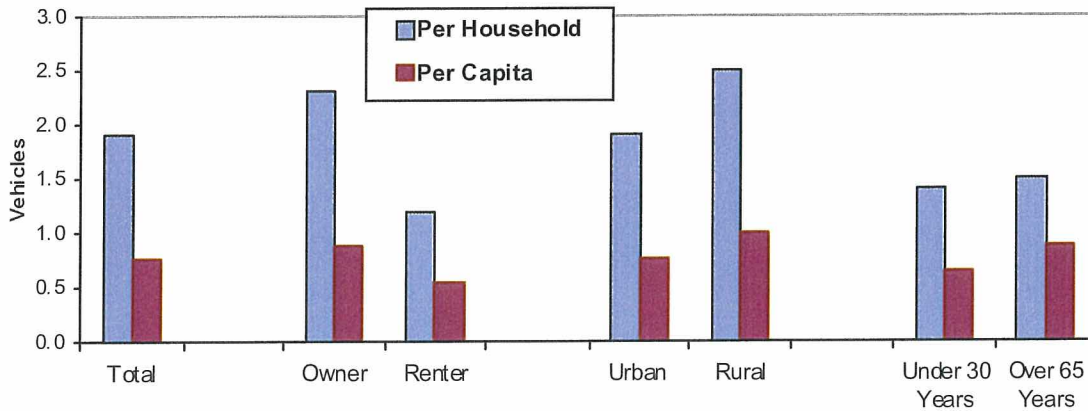
Figure 4 Vehicles Per Resident By Income Class (BLS, Various Years)



This figure shows the average number of vehicles per capita by income quintile.

Figure 5 illustrates how factors such as home tenure, location and age affect vehicle ownership and therefore parking demand.

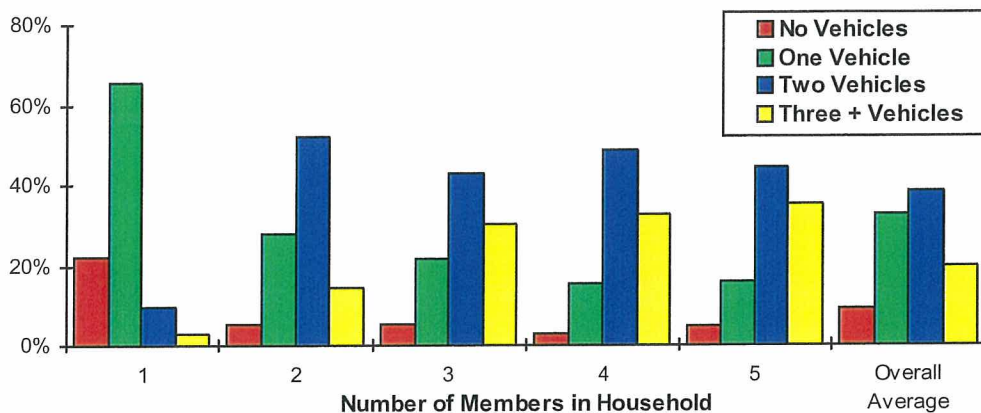
Figure 5 Vehicles Per Household (BLS, 2002)



Household vehicle ownership rates vary depending on factors such as home tenure, location and resident age.

Vehicle ownership varies with household size, as illustrated in Figure 6. Even a two or three bedroom home may only require one parking space because it is occupied by an adult who uses an extra bedroom as a study, a single parent with children, or two or three adults who share a vehicle.

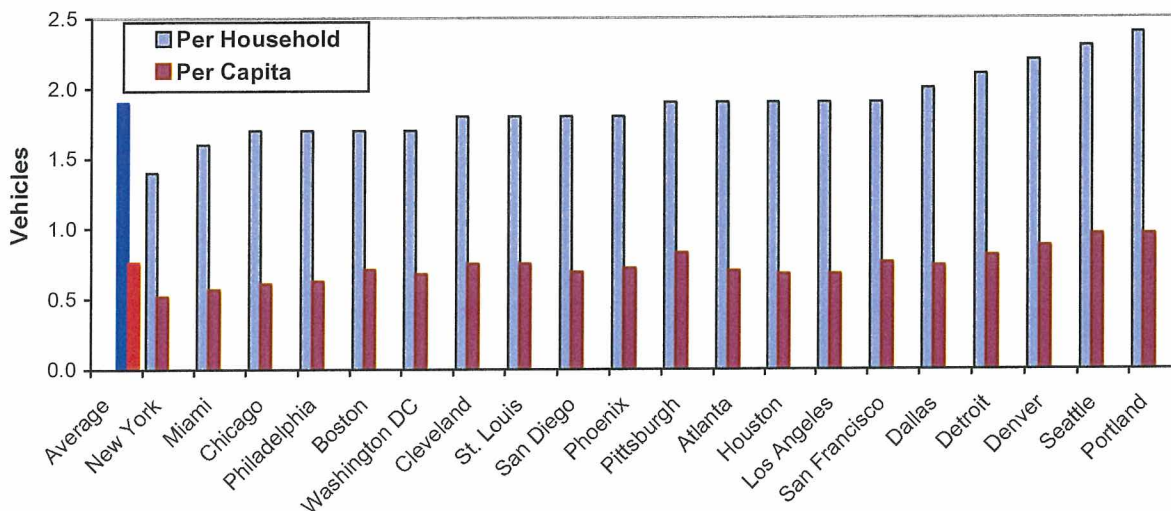
Figure 6 Vehicle Ownership by Household Size (Hu and Young, 1993, Table 3.17)



Smaller households tend to own fewer vehicles than larger households.

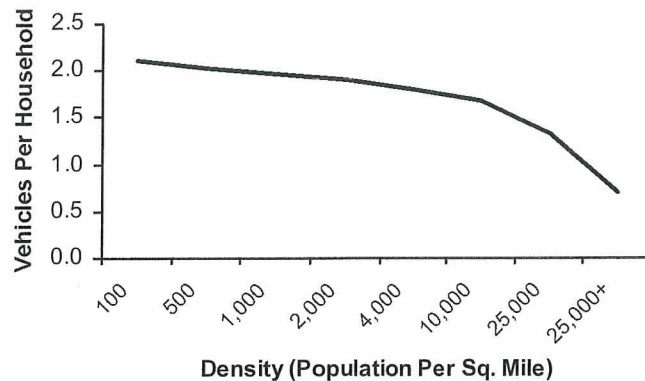
Automobile ownership is also affected by geographic factors such as city size, population density and transit service quality (“Land Use Impacts On Transportation,” VTPI, 2005). Figure 7 shows how vehicle ownership rates vary between different U.S. cities. Figure 8 shows how vehicle ownership is affected by population density.

Figure 7 Vehicles Per Household For Various U.S. Cities (BLS, 2002)



Vehicle ownership varies from one city to another. Even greater variations exist within an urban region, such as between central and suburban neighborhoods.

Figure 8 Vehicles Per Household by Population Density (NPTS, 1995)



Vehicle ownership rates decline with population density.

Residents of communities with more diverse transport systems tend to own fewer cars and take fewer vehicle trips than in more automobile-dependent areas (Litman, 2005). Holtzclaw (1994) developed a model for predicting how density and transit service availability affect vehicle ownership and use, summarized in the box below. This formula is incorporated in the *This View of Density Calculator* (www.sflcv.org/density).

Household Vehicle Ownership and Use By Land Use Formula (Holtzclaw, 1994)

Household Vehicle Ownership = $2.702 * (\text{Density})^{-0.25}$

Household Annual Vehicle Miles Traveled = $34,270 * (\text{Density})^{-0.25} * (\text{TAI})^{-0.076}$

Density = households per residential acre.

TAI (Transit Accessibility Index) = 50 transit vehicle seats per hour (about one bus) within ¼-mile (½-mile for rail and ferries) averaged over 24 hours.

Bunt and Joyce (1998) surveyed parking demand around the city of Vancouver’s SkyTrain stations. They found:

- Nearly a quarter of households living near transit stations own no vehicles.
- Households located within 300 metres of a station owned about 10% fewer vehicles on average than households located more than 1,000 meters from the station.
- Average household vehicle ownership is 31% lower within the SkyTrain corridor than at suburban locations a few miles away.

Carsharing (vehicle rental services designed to substitute for private vehicle ownership) tends to reduce vehicle ownership and parking demand (Filosa, 2006). Cervero and Tsai (2003) found that when people join a San Francisco carsharing organization, nearly 30% reduce their household vehicle ownership and two-thirds avoided purchasing another car, indicating that each carshare vehicle in that program substitutes for 5-10 private vehicles.

The elasticity of vehicle ownership with respect to price is typically -0.4 to -1.0, so a 10% increase in total vehicle costs reduces vehicle ownership 4-10% (“Transportation Elasticities,” VTPI, 2005). Table 3 and Figure 9 indicate the reduction in vehicle ownership that can be expected from various residential parking fees and unbundling. Unbundling allows residents to choose how much parking to rent with building space, rather than automatically including a set number of parking spaces. For example, rather than renting an apartment with two parking spaces for \$1,000 per month, the apartment could rent for \$850 per month, plus \$75 per month for each parking space the renter chooses. This is more equitable and efficient, since occupants are not forced to pay for parking they do not need. It allows consumers to adjust their parking supply to reflect their needs.

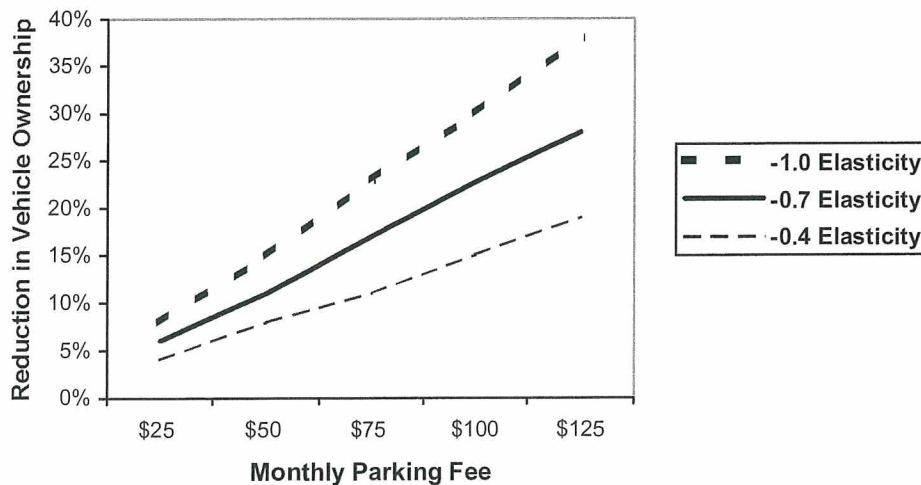
For example, a \$600 annual residential parking fee is likely to reduce vehicle ownership by 8-15%, and a \$1,200 annual fee reduces vehicle ownership 15-30%, assuming free parking is unavailable nearby.

Table 3 Vehicle Ownership Reductions From Residential Parking Pricing

Annual (Monthly) Fee	-0.4 Elasticity	-0.7 Elasticity	-1.0 Elasticity
\$300 (\$25)	4%	6%	8%
\$600 (\$50)	8%	11%	15%
\$900 (\$75)	11%	17%	23%
\$1,200 (\$100)	15%	23%	30%
\$1,500 (\$125)	19%	28%	38%

This table indicates reductions in vehicle ownership resulting from various residential parking fees, assuming that total vehicle ownership costs average \$4,000 per year.

Figure 9 Reduction in Vehicle Ownership From Residential Parking Prices



This figure illustrates typical vehicle ownership reductions due to residential parking pricing, assuming that the fee is unavoidable (free parking is unavailable nearby). Based on Table 3.

Parking Facility Costs

If a municipal government doubled residential property taxes to finance free public parking there would surely be considerable debate about the efficiency and equity of such a tax. At least some critics would probably suggest that such taxes are inefficient and unfair, and there would surely be arguments over the facilities' aesthetic and environmental design features. A 2-space per residence parking standard imposes similar costs yet there is often little discussion when city officials set such requirements. Parking requirements are a large but nearly invisible cost that is seldom evaluated as a separate expense. The total cost of parking consists of several components.

1. Land

Each off-street parking space requires about 300 square feet of surface area (including access lanes). One acre of land can hold about 125 spaces, fewer if major landscaping and screening are provided ("Parking Evaluation," VTPI, 2005). Land costs are about \$4,200 per space, assuming 120 parking spaces and \$500,000 per acre. Parking consumes a major portion of developed land, typically equal to or exceeding the land devoted to the buildings it serves. Expenses that occur early during project development, such as increased land acquisition and preparation costs, add construction financing costs, so parking facility expenses tend to incur higher financing costs than expenses incurred later in the development process.

Residential parking standards are calculated per unit, so parking land costs are a greater percentage of total costs for smaller units. For example, increasing parking from one to two spaces per unit increases land requirements for a small 1,000 square foot, two-story apartment or condominium from 800 to 1,100 square feet per unit, a 37% increase, resulting in more land devoted to parking than to housing. The same doubling of parking requirements only increases the land requirement for a 2,400 square foot one story house by 12.5%.

3. Construction and Maintenance

Paving costs average about \$1,600 per parking space in 1994 dollars, excluding land costs. Parking structure costs average approximately \$10,000 per space, and underground parking \$15,000 to \$20,000 per space, which makes these options uneconomic except where land prices are very high. Annual maintenance costs range from about \$20 to \$100 per year.

Table 4 illustrates the total cost per space for parking facilities in various conditions. Typical off-street residential parking costs range from about \$400 annually in suburban locations where land is considered to have no opportunity cost, to more than \$2,000 per year where underground parking is provided. Annual costs of \$800 to \$1,200 per space is probably typical for urban residential parking.

Table 4 Typical Parking Facility Financial Costs (“Parking Evaluation,” VTPI, 2005)

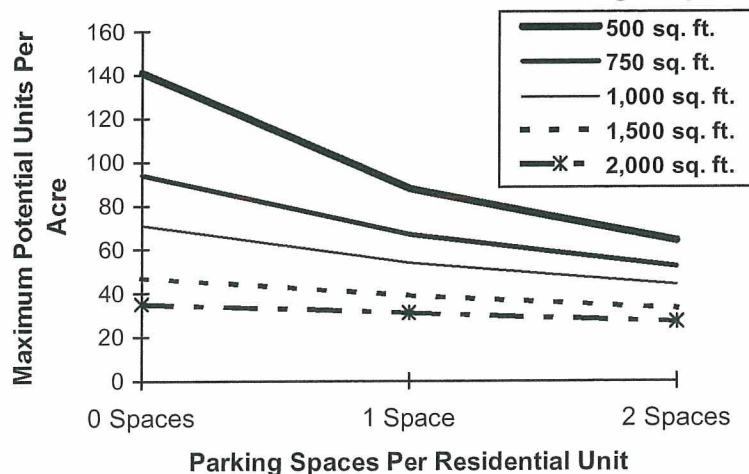
Type of Facility	Land Costs	Land Costs	Construction Costs	O & M Costs	Annual Cost	Monthly Cost
	Per Acre	Per Space	Per Space	Annual, Per Space	Annual, Per Space	Monthly, Per Space
Suburban, On-Street	\$50,000	\$200	\$2,000	\$200	\$408	\$34
Suburban, Surface, Free Land	\$0	\$0	\$2,000	\$200	\$389	\$32
Suburban, Surface	\$50,000	\$455	\$2,000	\$200	\$432	\$36
Suburban, 2-Level Structure	\$50,000	\$227	\$10,000	\$300	\$1,265	\$105
Urban, On-Street	\$250,000	\$1,000	\$3,000	\$200	\$578	\$48
Urban, Surface	\$250,000	\$2,083	\$3,000	\$300	\$780	\$65
Urban, 3-Level Structure	\$250,000	\$694	\$12,000	\$400	\$1,598	\$133
Urban, Underground	\$250,000	\$0	\$20,000	\$400	\$2,288	\$191
CBD, Surface	\$2,000,000	\$15,385	\$3,000	\$300	\$2,035	\$170
CBD, 4-Level Structure	\$2,000,000	\$3,846	\$15,000	\$400	\$2,179	\$182
CBD, Underground	\$2,000,000	\$0	\$25,000	\$500	\$2,645	\$220

This table illustrates the costs of providing a parking space under various conditions. (CBD = Central Business District; Assumes 7% annual interest rate, amortized over 20 years)

4. Reduced Development Density

By increasing the land needed per residential unit, increased surface parking reduces the maximum potential development density (units per acre). In other words, parking squeezes out housing. This impact is proportionally greatest for smaller units. For example, increasing parking requirements from one to two spaces per unit reduces the maximum potential density for two story, 500 square foot bachelor apartments from 88 to 64 units per acre, representing a 37% decline, but only causes a 13% reduction in maximum density for 2,000 square foot townhouses. Figure 10 illustrates this impact.

Figure 10 Maximum Units Per Acre With Different Parking Requirements



Maximum potential density declines as the number of surface parking spaces increases. This impact is proportionally largest for smaller units. (Assumes 300 sq. ft. per parking space, 90% land coverage, 10% common areas, 2 story buildings.)

5. Higher Retail Price Targets

Construction financing agencies often require that new building retail prices be at least 3 times original land costs. Each additional dollar of land costs for parking therefore increases housing prices by three dollars. Developers cannot afford to build a simple, lower priced housing when their land costs increase, so they target higher end markets.

6. Environmental and Aesthetic Costs.

Undeveloped land, farmland and urban landscaping (greenspace) provide a variety of environmental and aesthetic benefits, both to the land's owners and to society in general (Litman, 1997). Paved land, biologically barren and unattractive, tends to reduce adjacent property values, increases water pollution and stormwater flooding, reduces visual and acoustic privacy, and causes urban heat island (increased local temperatures).

7. Urban Sprawl and Increased Automobile Dependency.

Increased parking requirements increase land costs per area of developed floor space, making development at the urban periphery relatively more attractive due to lower land costs (Willson, 1995). Some studies suggest that such regulations discourage urban infill development (Burby, 2000). Increased parking also creates lower density urban and suburban land use patterns that are unsuitable for walking, bicycling and transit. Development densities under about 12 units per acre cannot effectively support public transit service and neighborhood amenities such as small shops within walking distance that substitute for driving. Since off-street parking is a fixed cost (households must pay it whether or not they own a car), fixed parking standards encourage automobile ownership and use.

Each of these impacts contributes to urban sprawl and automobile dependency (defined as increased automobile ownership and use, reducing travel choices, and increasing disadvantage of non-drivers compared with drivers. See "Automobile Dependency," VTPI, 2005). These exacerbate problems such as congestion, accidents, and pollution. Automobile dependency is highly inequitable to non-drivers.

8. Increased Curb Cuts

Offstreet parking requires curb cuts. This imposes at least two specific costs. It degrades the pedestrian environment (and therefore the retail environment in commercial areas) by causing vehicles to cross sidewalks, and it reduces capacity for on-street parking. A typical curb cut uses almost the same amount of curb space as a parked car, so a single-vehicle off-street parking space provides no net increase in parking capacity if it eliminates an on-street parking space. A double off-street parking space provides a net gain of one space.

Development Cost Example

Each increment of increased parking increases all of the costs described above as demonstrated by the following example: A developer wishes to construct 2 bedroom, 1,250 square foot, two-story, wood frame multi-family housing with \$100,000 per unit construction costs on a \$500,000, 1 acre parcel. Her costs are summarized in Table 5.

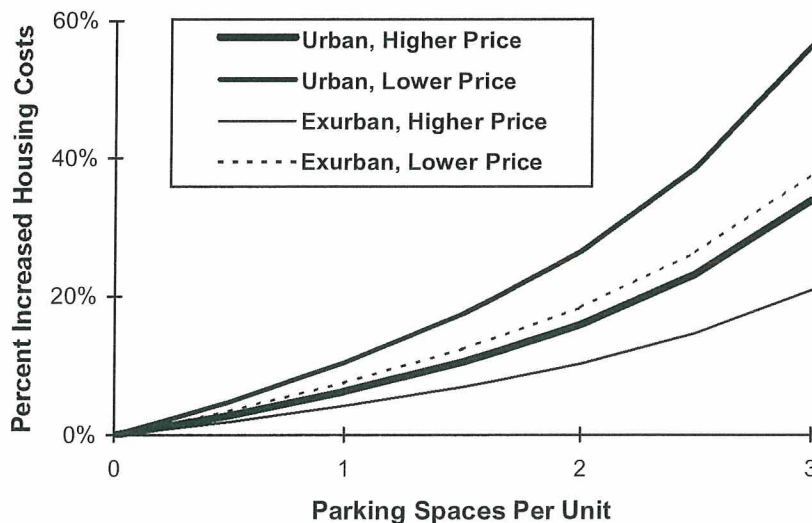
Table 5 Parking Impacts on Development Costs

Parking Spaces Per Unit:	0	1	2	3
Units / Acre	20	16	12	8
Land Cost / Unit	\$25,000	\$31,250	\$41,667	\$62,500
Paving costs.	\$0	\$1,600	\$3,200	\$4,800
Housing construction costs / Unit.	\$100,000	\$100,000	\$100,000	\$100,000
Land, parking & construction costs.	\$125,000	\$132,850	\$144,867	\$167,300
Construction financing (12%).	\$15,000	\$15,942	\$17,384	\$20,076
Total construction costs.	\$140,000	\$148,792	\$162,251	\$187,376
Developer's profit (10%).	\$14,000	\$14,879	\$16,225	\$18,738
Retail price per unit.	\$154,000	\$163,671	\$178,476	\$206,114
Parking as percentage of retail price.	0%	6.3%	15.9%	33.8%
Developers' profit per acre.	\$280,000	\$238,067	\$194,701	\$149,901

(Assuming Two-Story, 1,200 Square Foot, Multi-Family Housing)

Requiring one off-street parking space adds about 6% to the unit cost, two spaces add about 16%, and 3 spaces adds about 34% compared with no parking. These percentages vary depending on construction and land costs. Figure 11 illustrates incremental costs of parking for standard and affordable housing (\$100,000 and \$50,000 per unit construction costs), with urban and suburban land costs (\$500,000 and \$250,000 per acre).

Figure 11 Increased Per Unit Housing Price Due to Parking Costs

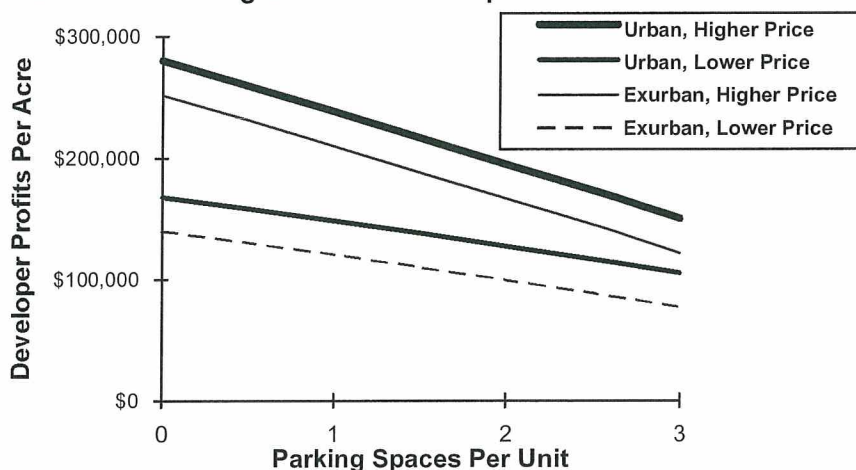


This shows parking costs as a percentage of housing costs for different construction and land costs. The percentage is greatest for lower price urban housing. This does not include additional indirect costs and non-market, such as reduced greenspace.

This shows that generous minimum parking requirements significantly increase housing costs, especially when land prices are high and housing construction costs are relatively low, such as affordable, urban infill housing. Based on typical affordable urban housing development costs, one parking space per unit increases total development costs by about 12.5%, and two parking spaces increase costs by about 25%.

Parking requirements reduce developers' profits per acre, as illustrated in Figure 12. In this case, a developer is equally rewarded for producing 10 high priced housing units with 3 parking spaces per unit or 20 affordable housing units with no parking spaces, but has 30% less profit for lower priced housing with 3 parking spaces. Parking requirements reduce developers' incentive to produce affordable housing.

Figure 12 Effect of Parking Costs on Developer Profits Per Acre



Developer profits per acre decline with increasing parking due to increased costs and reduced units. This reduces developers' incentive to build affordable housing.

According to a study by Shoup, these generous parking requirements are the largest of all regulatory burdens placed on developers, about four times greater than all other development fees combined, such as levies for schools, parks and roads (Shoup, 1999).

Developers' most common response to the high incremental costs of increased parking is to stop building affordable urban housing. One case study from the early 1960's found that requiring one off-street parking space per unit reduced dwelling units per acre in new multi-family developments by 30%, and increased construction costs by 18% (Smith, 1964). This significantly reduced the amount of urban land available for infill housing and gave developers an incentive to develop fewer, larger and lower quality units. The resulting reduction in affordable housing construction increased local rents (Shoup, 2005 contains more examples of parking requirement cost impacts).

Parking imposes similar costs for non-profit developments. To provide housing that can be purchased at \$80,000 per unit (for a monthly mortgage of about \$700, the maximum recommended house payment for a family earning \$30,000 annually), a subsidy of only \$4,000 would be needed if no parking is required, a \$12,792 subsidy is required for one parking space per unit, \$26,251 for two parking spaces, and \$51,376 for three (based on Table 5 values). In this case a given housing budget could benefit about 6.5 times as many households that don't have parking spaces compared with 2 spaces per unit.

A study found that San Francisco housing prices increased significantly (an average of \$39,000 or 13% for condominiums, and \$46,000, or 12% for single-family units) if they include off-street parking (Jia and Wachs 1998). Only unit size and number of bathrooms have a greater effect on sales price. Based on standard mortgage requirements, a typical household would need to earn \$76,000 annually to purchase a single-family home with off-street parking, compared with \$67,000 for the same housing without parking.

Similarly, Jung (2009) used hedonic pricing to estimate the marginal effect of an additional parkade-style parking space on condominium prices. His results indicate that the value of a parking space is statistically significant but substantially less than the typical cost of supplying that space. The results suggest that if the retail price is increased to include the costs of additional parking spaces, the higher price does not fully reflect the cost to the developer of providing those parking spaces. This adversely affects housing affordability because developers must charge more per unit, and to the degree that the additional parking costs cannot be recovered by higher prices, are likely to provide less housing, leading to a higher market-clearing price, particularly in lower price ranges.

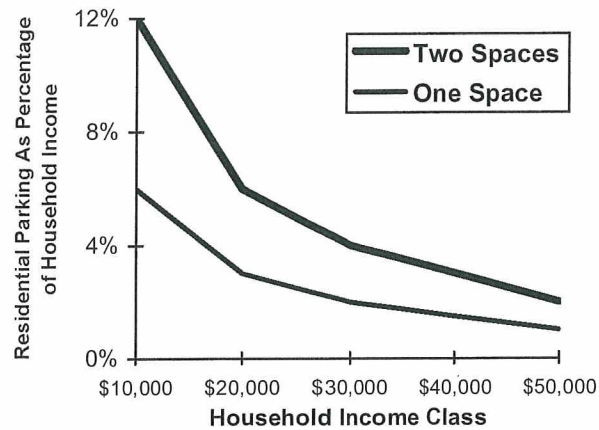
Impacts on Lower Income Households

Who is disadvantaged most by generous parking requirements? Since they are based on average parking demand they represent approximately what middle income, able-bodied households would choose. Various groups tend to own fewer than average automobiles, value the potential savings that result from reduced parking requirements, and live in higher-density, multi-family housing, including low-income households, young adults, single parents, first time home buyers, older people, and people with disabilities.

As discussed earlier, vehicle ownership and use tends to increase with income. Lower-income households are directly harmed by generous off-street parking requirements, since they tend to own fewer vehicles and pay more for parking as a percentage of housing costs. For example, the \$100 per month direct cost of two parking spaces represents only 5% of a \$2,000 per month luxury condominium rent, but 20% of the \$500 per month rent of a basic apartment. Poor households also spend a greater share of their income on housing than wealthier households, as shown in Figure 1.

Since parking is a relatively fixed expense, it represents a proportionally greater burden for lower income households. Figure 13 illustrates parking costs as a percentage of household expenditures, showing a much greater impact on poor families.

Figure 13 Residential Parking Costs as a Percentage of Household Income



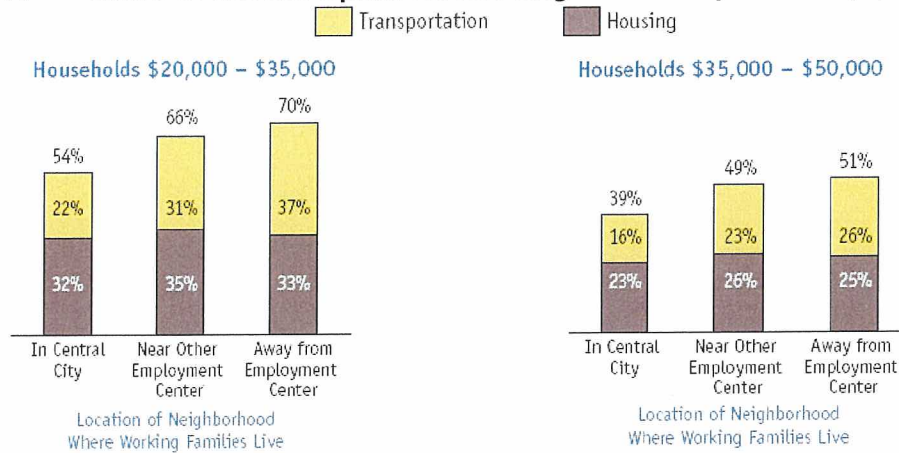
Parking costs typically constitute a greater portion of household expenditures for poor than for wealthier households, indicating they are regressive. (Based on \$50 monthly parking space cost.)

Dense development has a bad reputation, so some reductions in density caused by increased parking requirements could be considered a benefit to poor households. But an amenity that consumers only buy due to an external requirement is seldom a true benefit. In practice, paved surfaces, such as parking lots, provide few of the amenities that make lower densities desirable, such as privacy, noise reduction, aesthetics and access to greenspace. Thus, increased parking results in the worst of all worlds: lower density, automobile oriented communities with degraded environments.

Some communities use restrictive zoning laws to exclude lower-income households, because they are considered “undesirable” neighbors. This is inequitable. As researcher Jonathan Levine concludes, “Land use controls enforcing low-density, large-lot, automobile dependent development styles are a subsidy for those who choose to and can afford to live in the housing produced; by reducing the prevalence of other forms of residential development, they increase the supply of the standardized product. Those who pay the cost of this subsidy are those who would have chosen to – and might have afforded to – reside in those locales if more alternative housing forms had been allowed there,” (Levine, 1998, p. 147).

Current housing markets harm lower-income households by forcing them to choose between urban residential locations, which tend to be either in undesirable neighborhoods or have high prices, and suburban or exurban residential locations, which have lower housing costs but much higher transportation costs (CTOD and CNT, 2006; Lipman, 2006). Many lower income households would be financially better off if affordable housing were available in more accessible, multi-modal urban locations where their combined housing and transportation costs were lower. More flexible parking requirements can help provide such housing by reducing housing development costs in areas with higher land prices.

Figure 14 Share Of Income Spent On Housing And Transportation (Lipman, 2006)



Lower income households often choose more distant residential locations to find affordable housing, but bear higher transport costs as a result. More flexible parking requirements can help increase overall affordability.

Impacts on Automobile Ownership and Use

Forcing households to pay for residential parking increases vehicle ownership rates. Average income households spend an average of \$3,800 annually per vehicle, and lower-income households spend an average of \$3,000 annually per vehicle (BLS, 2002). Assuming that residential parking spaces cost \$800 per year, parking costs add 21% to vehicle costs for an average income household, and 27% to the cost of a lower-income household. Assuming a vehicle price elasticity of -0.7 for average income households and -0.1 for lower income households (Table 3), generous minimum parking requirements increase urban vehicle ownership about 14% overall and about 25% among lower-income urban residents. The resulting increase in vehicle ownership and use increases various external costs such as congestion, traffic accidents and pollution.

Some people might conclude that poor households are better off owning these cars. This is a misreading of the analysis. The additional automobiles owned as a result of parking requirements are marginal vehicles that the owners would give up if they had the option. It is comparable to a law forbidding the sale hamburger, forcing poor families to eat more steak. Steak may taste better than hamburger, but its higher cost means that households must forego other goods that it values more. If poor families really valued steak that much they would not have bought hamburger in the first place, so no law would be needed. From a household's perspective, minimum residential parking requirements remove flexibility and choices that can make the family overall better off. This constraint is experienced most by lower income households that tend to own fewer than average automobiles, and value highly potential savings in housing and transportation costs.

Possible Mitigating Factors

Some people may be skeptical of this analysis. After all, most low-income families do own vehicles and most do find housing. Are there mitigating factors that reduce the impacts described here? Yes, but they create their own set of problems.

1. Even poor families, *can* afford \$500 to \$1,500 per year to pay for residential parking, but it significantly reduces their wealth and options.
2. Urban decay reduces property values in some locations, which creates virtually no-cost parking. Poor households can therefore afford to meet generous parking requirements provided they live in undesirable neighborhoods. But such “throw-away” land use patterns impose tremendous costs. They force poor households to live in dangerous and hopeless neighborhoods, creating class and racial segregation.
3. Public agencies subsidize some housing to maintain affordability. But this creates significant financial and social costs. Few communities can afford to provide good housing to all low-income households. Generous parking requirements reduce the amount of affordable housing that can be provided with a given budget.
4. An abundance of used automobiles and low fuel prices in North America allow even low-income families to buy an “old beater” and live in the suburbs where land values (and therefore parking costs as an increment of housing expenses) remain low. This, however, exacerbates various problems, including increased environmental impacts, a lack of travel options for non-drivers, and household dependency on unreliable private transportation. Poor drivers often have no insurance, imposing financial and legal costs on other road users.

Although these mitigating factors reduce some impacts of parking requirements on housing costs, they are economically inefficient and inequitable. They fail to actually reduce the cost and increase the productivity with which housing is provided, and they exacerbate social and environmental problems.

Solutions

There is much that can be done to manage parking to increase housing affordability. For more information see Arigoni, 2001; Russo, 2001; SPUR, 2002; VTPI, 2005; CTOD, 2008.

A paradigm shift (a change in the way problems are defined and solutions evaluated) is occurring in transportation planning. The old paradigm relied primarily on supply-oriented solutions (expanding road and parking facility capacity). It assumed that parking problems should generally be solved by increasing parking supply, usually by raising the minimum parking requirements for new development. From this perspective, parking demand is an unchangeable force that must be satisfied, and parking should generally be provided free, with costs incorporated in building and roadway construction budgets.

The new paradigm places more emphasis on management solutions (“Parking Management,” VTPI, 2005). It recognizes the need to provide adequate parking, but values strategies which result in more efficient use of parking resources and reduce the amount of parking needed at a particular location. From this perspective, too much parking supply is as harmful as too little. With this approach, parking demand can often be managed in ways that reduce costs and the need to subsidize parking facilities.

Rather than establishing generous parking requirements to satisfy the maximum potential demand that may occur during the lifetime of a facility, parking management allows contingency-based planning, which means that various solutions are identified which can be deployed if needed. For example, rather than providing 150 parking spaces at a 100 unit apartment building, as required by conventional standards, the developer might initially supply 80 spaces, along with various parking management strategies, and perhaps some land banked for constructing additional parking if needed. This approach saves costs and is more responsive to community needs.

Parking management involves both government agencies (which allow more accurate and flexible minimum parking requirements, and enforce parking management agreements) and building developers and managers (which develop and implement parking management programs). An effective parking management plan usually involves several components. Examples of parking management strategies are described below. For more information see VTPI, 2005.

More Accurate and Flexible Requirements

Minimum parking requirements can be more accurate and flexible to better reflect the demand at a particular location and time. Standards can be adjusted to reflect demographic, geographic and management factors. For example, standards can be reduced for housing that serves lower-income people, students and elderly; for housing in more accessible locations (such as near transit stations and in mixed-use neighborhoods); in buildings that have carshare services, and where parking is priced. This gives developers and building operators an incentive to use parking management solutions, by allowing them to save money when they reduce parking demand.

Shared Parking

It is often possible for motorists and buildings to share parking facilities, to increase efficiency and flexibility. For example, 100 residents or employees can often share 70-80 parking spaces, since at any period in time some are likely to be away. Similarly, an apartment and an office building can share parking facilities, since the office peak demand occurs during weekdays, while the apartment's peak occurs during evenings and weekends.

Local governments can allow developers to pay "in lieu" fees, which help fund off-site municipal parking facilities, as an alternative to providing on-site parking (Shoup, 1999). This gives developers more flexibility (allowing better site design and preservation of unique and historic resources that cannot otherwise accommodate on-site parking), allows parking facilities to be located where they most optimal for the sake of urban design, and results in more efficient and cost effective shared parking facilities.

Unbundling

Rather than automatically including a certain amount of parking with building space, parking costs can be borne directly by users by "unbundling," which means that parking is rented or sold separately. For example, rather than renting an apartment with two parking spaces for \$1,000 per month, the apartment could rent for \$850 per month, plus \$75 per month for each parking space. This is more equitable and efficient, since occupants are not forced to pay for parking they do not need, and allows consumers to adjust their parking supply to reflect their needs.

Parking can be unbundled in several ways:

- Facility managers can unbundle parking when renting building space.
- Developers can make some or all parking optional when selling buildings. For example, a condominium can be sold with no parking or just one space, with additional spaces available for purchase or rent if desired.
- In some cases it may be easier to offer a discount to renters who use fewer than average parking spaces, rather than charging an additional fee. For example, an office or apartment might rent for \$1,000 per month with two "free" parking spaces, but renters who only use one space receive a \$75 monthly discount.
- Lease agreements can itemize parking costs. To facilitate unbundling some communities require that parking be a separate line-item in lease contracts, even if spaces are automatically included. Once renters become aware of what they pay for parking they may decide to negotiate changes, perhaps renting fewer spaces or trading parking spaces with other residents.
- Minimum parking requirements can be reduced for developments with unbundled parking, which recognizes that, given a choice, many residents will reduce their parking demand.
- An informal approach to unbundling parking is to help create a secondary market for available spaces. For example, office, apartment and condominium managers can maintain a list of residents who have excess parking spaces that are available for rent.

Location Efficient Development

Current lending policies mistakenly treat automobiles owned by a household as financial assets rather than liabilities, which encourages home buyers to choose automobile-dependent suburban location over urban locations. Owning one less vehicle saves a household an estimated \$3,000 annually in vehicle costs and \$50 per month in parking costs (Hare, 1993). “Location Efficient Mortgages” recognize these saving in housing loans, eliminating a bias that makes suburban housing appear more affordable than urban housing, despite greater total (transport and housing) expenses. Cervero (1996) finds that there is unmet market demand for such housing, particularly near transit stations. CTOD (2008) describe various ways to maximize the value of transit-oriented, infill development.

Carsharing

Carsharing refers to automobile rental services intended to substitute for private vehicle ownership. It makes occasional use of a vehicle affordable, even for low-income households, while providing an incentive to minimize driving and rely on alternative travel options as much as possible. Where carsharing services are available, some households reduce their vehicle ownership, either shifting from two to one vehicle, or from one to zero vehicles. Residential developers and building operators can encourage carsharing by providing free or discounted parking for carshare vehicles, or by offering subsidized memberships in carshare organizations to residents.

Carfree Planning (“*Car-Free Planning,*” VTPI, 2005)

Some planners are experimenting with “car free” housing developments specifically designed to accommodate households that do not own a motor vehicle and take advantage of community benefits of reduced vehicle traffic (such as using land that would be needed for parking in an automobile-dependent area for common greenspace).

Overflow Parking

It is often possible to reduce parking requirements by identifying ways to manage occasional peak demands. For example, a building operator may provide information to residents on “overflow” parking options for guests (for example, when they have a party), or for residents who purchase addition vehicles, such as a trailer or collector car. This may involve sharing agreements with other buildings nearby, or information on commercial parking and storage facilities in the area.

Transportation Management Associations

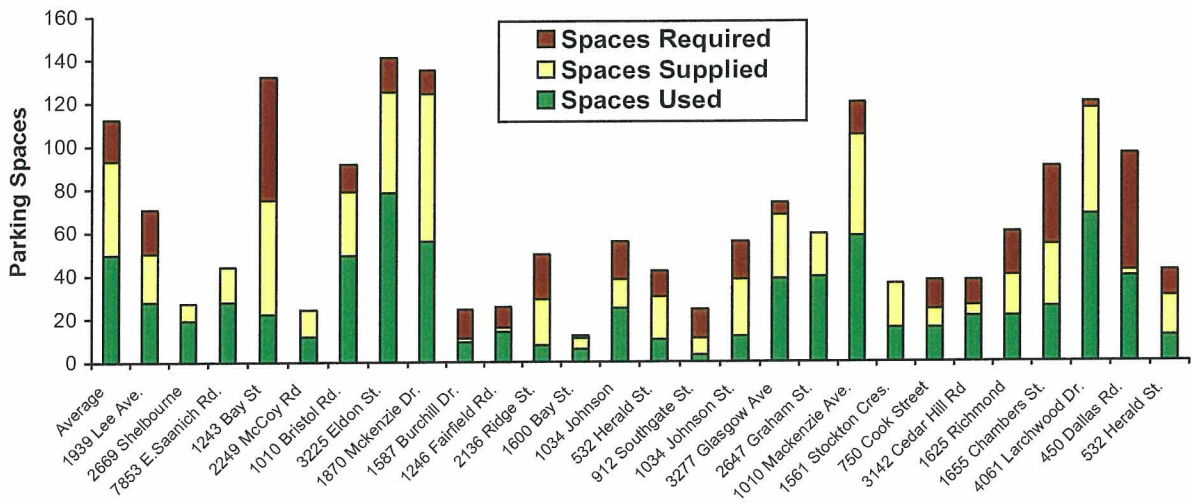
Transportation Management Associations (TMAs) are private, non-profit, member-controlled organizations that provide transportation services in a particular area. TMAs provide an institutional framework for transportation and parking management programs, including parking brokerage services which help building operators share, trade, lease and rent parking facilities. They are usually more cost effective than programs managed by individual businesses.

Parking Utilization Studies

To evaluate the appropriateness of current parking requirements it is useful to perform parking utilization studies, that is, surveys of parking facilities to determine how many spaces are occupied during peak demand periods. For information on such studies see *Parking Generation* (ITE, 2004). For residential uses, peak demand occurs during weekday evenings or on weekends.

Students in a University of Victoria planning course performed residential utilization studies of multi-family residential buildings as an assignment (this was easy since most lived in such buildings or had friends that did). These surveys indicate that, for the 33 buildings studied, only 54% of the available parking spaces were occupied during peak periods, and if these buildings had the number of parking spaces required by current minimum parking requirements (based on a standard of 1.5 parking spaces per unit), only 46% of those parking spaces would be occupied. Figure 15 illustrates the results.

Figure 15 Parking Utilization Versus Supply and Requirements



This figure shows the number of parking spaces used, currently supplied, and required for new construction at various multi-family residential buildings in Victoria, British Columbia.

Several sites have peak-period parking utilization below 50%, and many parking facilities have spaces that are obviously never used. Investigators reported that some motorists park on the street to avoid using less convenient spaces behind buildings. Only five of the 33 sites report frequent conflicts over parking, and these often involve particular spaces (i.e., those considered most convenient or safe), not overall parking supply. Some investigators reported, based on their own or friends' experiences, that some residents will use a parking space if it is supplied with the unit, but if a fee is charged they will reduce their vehicle ownership or storing their vehicle at their family home during the school year.

Affordable Housing Opportunities

There are many possible ways to make housing more affordable, including direct housing subsidies for lower-income people, indirect subsidies such as rent controls, and various ways of reducing housing production costs. Some of these strategies are more efficient and equitable than others. Subsidies by themselves tend to be unfair and inadequate. In a typical community 10-20% of households face housing affordability problems, including those who are working poor or on a fixed income. It is unrealistic to provide full subsidies to all who want and deserve more affordable housing. As a result, such programs are often arbitrary, favoring some disadvantaged groups but not others.

A much more effective way to provide affordable housing is to reduce construction costs for moderately-priced new units. This increases housing affordability both directly (by reducing the costs of new housing) and indirectly by increasing affordable housing supply. The added units do not all need to be “affordable” themselves, but they free up the older stock of housing to be truly affordable. In urban area where land costs are high, the best way to increase affordability is to minimize land requirements per unit by increasing density and reducing parking facility requirements. Table 6 illustrates how density and parking affect the amount of land required per unit and the number of units per acre for various number of floors, with and without surface parking. This shows how even modest increases in density (say, from two to three or four stories) and reductions in surface parking can significantly reduce land requirements.

Table 6 Land Area Per Unit

Housing Type	Without Surface Parking		With Surface Parking	
	Sq. Feet	Units Per Acre	Sq. Feet	Units Per Acre
1/2 Acre Single-family	21,780	2	21,780	2
1/4 Acre Single-family	10,890	4	10,890	4
Small-lot Single-family	5,445	8	5,445	8
Two-Story Duplex	3,630	12	3,630	12
Three-Story Townhouse	1,000	44	1,333	33
Four-story Condominium	450	97	783	56
Medium-Rise Condominium	225	194	558	78
High-Rise Condominium	113	387	446	98

Increased density and reduced parking requirements significantly reduce unit land requirements. This assumes that one-third of parcel is devoted to setback, and 333 square feet per surface parking space.

Table 7 illustrates the cost of providing these units and the number that could be subsidized with a \$10 million budget, assuming land costs average \$1,000,000 per acre and each units costs \$100,000 to construct. The number of units that can be provided with a given subsidy increases more than five hundred percent with increased density and reduced parking. The largest cost reductions occur with shifts from low- to medium-density, indicating that affordability does not require high-density, high-rise housing.

Table 7 Costs Per Unit and Subsidized Households

Housing Type	With Surface Parking		Without Surface Parking	
	Cost Per Unit	Subsidized Units	Cost Per Unit	Subsidized Units
1/2 Acre Single-family	\$1,100,000	17	\$1,100,000	17
¼ Acre Single-family	\$600,000	29	\$600,000	29
Small-lot Single-family	\$350,000	44	\$350,000	44
Two-Story Duplex	\$266,667	55	\$266,667	55
Three-Story Townhouse	\$161,203	77	\$145,914	81
Four-story Condominium	\$135,950	85	\$120,661	91
Medium-Rise Condominium	\$125,620	89	\$110,331	95
High-Rise Condominium	\$120,455	91	\$105,165	97

Increased density and reduced parking requirements significantly reduce the costs of producing housing and the number of units that can be produced for a given subsidy.

These benefits increase further if subsidy is distributed as a match grant. For example, if we ask occupants to pay \$100,000, either toward purchasing the unit or about \$400 per month in rent, the number of units that can be provided by the subsidy increases to many hundreds.

Table 8 Subsidized Household With Matching Grants

Housing Type	With Surface Parking		Without Surface Parking	
	Subsidy Per Unit	Subsidized Units	Subsidy Per Unit	Subsidized Units
1/2 Acre Single-family	\$1,000,000	20	\$1,000,000	20
1/4 Acre Single-family	\$500,000	40	\$500,000	40
Small-lot Single-family	\$250,000	80	\$250,000	80
Two-Story Duplex	\$166,667	120	\$166,667	120
Three-Story Townhouse	\$61,203	327	\$45,914	436
Four-story Condominium	\$35,950	556	\$20,661	968
Medium-Rise Condominium	\$25,620	781	\$10,331	1,936
High-Rise Condominium	\$20,455	978	\$5,165	3,872

Increased density and reduced parking requirements significantly increase the number of households that can benefit, assuming that lower-income residents pay a share of costs. (“Sub. Units” = Subsidized Units)

The benefits of infill, density and reduced parking costs become even larger and more logical if we evaluate affordability in terms of combined housing and transportation costs. Location decisions often involve trade-offs between housing and transportation costs: land and therefore housing costs are often lower at the urban fringe where transportation costs are highest. Residents of such locations typically pay several thousand dollars a year in vehicle expenses. Increased density and reduced parking requirements allow more moderate- and low-income households to choose homes in accessible locations where their transportation costs are minimized, saving thousands of dollars. True affordability is therefore where housing is affordable and automobile ownership and use can be reduced.

Current, generous levels of parking supply in growing urban areas provide an unintended land bank that, with more efficient management could be used to create location-efficient housing (Shoup, 2005). With improved design and management many retail malls, commercial districts and other urban centers could reduce the amount of land devoted to parking facilities by 20-40%, or even more (“Parking Management,” VTPI, 2005). Parking lots are often the largest single largest land use in such areas, typically using 30-50% of land area. In many situations, more efficient management would allow many acres of land to be developed within or near these urban centers, which is ideal for location-efficient, truly affordable housing, that is, housing located in accessible, multi-modal areas where residents can minimize their transportation costs by relying on walking, cycling, public transit, taxi and carsharing. Such locations are also appropriate for people with disabilities or other constraints on their ability to drive. Similarly, land currently used for urban parking may be appropriate for mixed-use residential, commercial and institutional development, allowing more compact retail and employment centers that are more accessible by walking and public transit. This type of infill development reflects *Smart Growth* and *New Urbanist* planning principles (“Smart Growth” and “New Urbanism,” VTPI, 2005; King, 2008).

Figure 16 Urban Land Devoted To Parking



With better design and management, much of the urban land currently devoted to parking could be used for other purposes. It is ideal for location-efficient infill residential and mixed-use development, creating truly affordable housing where residents can minimize their transport costs. People with limited mobility can particularly benefit by living close to public services.

Examples and Case Studies

Examples of parking management for residential affordability are described below.

Condominium Parking Requirements (Energy Pathways, 1994)

Mississauga, Ontario is a major suburb of Toronto. Since 1979 the city zoning code required 2.0 parking spaces per condominium unit, of which 1.75 were for residents and 0.25 were for visitors. This is estimated to represent 7-17% of the total housing costs. A detailed parking demand study conducted at 34 typical condominium buildings tracked the type of parking (surface or underground), number and size of housing units, proximity to public transit, surrounding land uses, residents' and managers' concerns about parking, and building vacancy rates. Questionnaires were mailed to all 5,600 residents, of which 800 were returned, and all building managers, of which 16 were returned. Resident and visitor parking demand were surveyed. It found that residents had relatively low average vehicle ownership (1.28 vehicles per unit). Current parking supply was 20% higher, and the existing standard was 35% higher, than residents' vehicle ownership. The study recommended revised parking standards for condominiums as illustrated in Table 9. Revised standards were adopted by the city in 1994.

Table 9 Recommended Parking Standards

Unit Type	Resident Spaces	Visitor Spaces	Total Spaces
Studio	1.0	0.25	1.25
Bachelor	1.0	0.25	1.25
One Bedroom	1.16	0.25	1.41
One Bedroom Plus Den	1.3	0.25	1.55
Two Bedroom	1.5	0.25	1.75
Two Bedroom Plus Den	1.70	0.25	1.95
Three Bedroom	1.75	0.25	2.0

Affordable Residential Development (SPUR, 1998)

Table 10 illustrates how tradeoffs between housing and parking affect the costs of medium-rise (four stories maximum) housing on a 3-acre parcel in an urban neighborhood. As the number of surface parking spaces increases, the number of housing units declines and costs rise. Using underground parking reduces land requirements but significantly increases construction costs. As a result, it is impossible to provide affordable rents while meeting conventional parking requirements.

Table 10 Residential Development Options

	Option 1	Option 2	Option 3	Option 4
Housing Units	50	40	30	50
Parking	25 (surface)	40 (surface)	40 (surface)	50 (underground)
Cost Per Unit	\$50,000	\$60,000	\$75,000	\$80,000
Monthly Rent	\$312	\$375	\$468	\$500

Generous minimum parking requirements also impose costs on non-profit developments (Nelson/Nygaard, 2002). To provide housing priced at \$80,000 per unit (for a monthly mortgage of about \$700), a subsidy of only \$4,000 would be needed if no parking is required, a \$12,792 subsidy would be required for one parking space per unit, and a \$26,251 subsidy for two parking spaces. A given housing subsidy fund can benefit about 6.5 times as many households with no parking spaces compared with 2 spaces per unit.

Harris Green Redevelopment (www.city.victoria.bc.ca)

In 1997 the city of Victoria, BC sponsored a community planning project to encourage redevelopment in the Harris Green neighborhood near downtown. Minimum parking requirements were eliminated there. In subsequent years numerous condominiums and apartments were constructed. To minimize costs and accommodate the large portion of residents who own no vehicles, most units are sold or rented without parking. Residents rent parking spaces if they need them. Developers find that they need only about 0.5 parking spaces per unit, as opposed to 1.0 to 2.0 in conventional multi-family buildings.

Soma Studios and Apartments (www.dbarchitect.com)

The new five-story building at 8th and Howard in San Francisco combines 74 affordable family apartments and 88 small studios, a child care center and a market, providing 246 bedrooms and 24,000 square feet of commercial space on one acre. The building contains a 66-space parking garage, 0.38 spaces per unit, with parking rented separately from housing units. Unbundled parking freed up space for the childcare center and neighborhood retail, and significantly reduced apartment rents.

Redeveloping Transit-Station Area Parking Lots (CNT, 2006)

The study, *Paved Over: Surface Parking Lots or Opportunities for Tax-Generating, Sustainable Development?* (www.cnt.org/repository/PavedOver-Final.pdf), evaluates the potential economic and social benefits if surface parking lots around rail transit stations were developed into mixed-use, pedestrian friendly, transit-oriented developments. The analysis concludes that such development could help to meet the region's growing demand for affordable, workforce, senior, and market rate housing near transit, and provide a variety of benefits including increased tax revenues and reduced per capita vehicle travel. The parking lots in nine case studies are estimated to be able to generate 1,188 new residential units and at least 167,000 square feet of new commercial space, providing additional tax revenues, plus significant reductions in trip generation and transportation costs compared with more conventional development.

Residential Garage Conversions (www.ci.santa-cruz.ca.us/pl/hcd/ADU/adu.html)

Santa Cruz, CA has a special program to encourage development of *Accessory Dwelling Units* (ADUs, also known as *mother-in-law* or *granny* units), which often consist of converted or expanded garages, to increase housing affordability and urban infill. The city has ordinances, design guidelines and information materials for such conversions. *Smallworks* (<http://smallworks.ca>) is a Vancouver, BC construction firm that specializes in small lane-way (alley) housing, which are often converted garages.

Parking Management for More Affordable Housing

www.huduser.org/rbc/newsletter/vol7iss2more.html

A variety of parking management strategies are being adopted to increase housing affordability and help achieve other planning objectives. These strategies include reduction or elimination of minimum parking requirements based on density, car ownership rates, and availability of public transit; allowing shared parking; and unbundling parking from housing. Specific examples are discussed below.

San Francisco, California

San Francisco is a transit-friendly city that has retained its historic character and walkable neighborhoods. According to the 2000 Census, 30% of total San Francisco households, and more than 50% of households in transit-rich areas, are car-free. A 1997 University of California [study](#) found that single-family housing without off-street parking sold for an average of \$46,391 less than housing with off-street parking — affordable to 24% more area households. The city revised its parking requirements to help reduce traffic congestion and increase affordable housing in downtown area districts. Revisions eliminated minimum parking requirements for downtown housing, and established maximum parking of [one space for four units](#). Other strategies include car-sharing programs and requiring developers to unbundle parking from housing costs. Reduced parking requirements for Rich Sorro Commons, a [mixed-use project](#) with 100 affordable units for low-income families, resulted in additional space for a childcare center and retail stores, generating about \$132,000 in additional revenue. The childcare center is especially beneficial to low-income families, and the additional revenue makes housing units more affordable.

Seattle, WA

Half the households in [Press Apartments](#) on Capitol Hill's Pine Street in Seattle, WA own no vehicles, leaving 60% of its parking spots unoccupied. In 2006, Seattle reduced parking required in mixed-use neighborhoods, and eliminated minimum parking requirements in downtown areas to increase housing opportunities and encourage pedestrian-friendly neighborhoods. Minimum parking required for affordable housing was reduced to 0.33 – 1.0 space per unit, depending on location and unit size. The city maximum parking requirements for downtown offices, allows reduced parking for elderly and disabled housing, and for multifamily developments with car-sharing programs.

Portland, Oregon

Portland, Oregon has implemented various parking management strategies designed to increase housing density, promote transit-oriented neighborhoods, and support existing and new economic development. Portland [eliminated minimum parking requirements](#) in the central city district and for sites located within 500 feet of a high-capacity transit station. The city's zoning ordinance specifies maximum parking requirements for areas outside the central city district, which vary depending on the use and the distance from a light rail station. Other parking measures include shared parking, and reduction from minimum requirements for car sharing, transit access, and availability of bicycle parking. Two mixed-use projects located outside Portland's central city, [Buckman Heights and Buckman Terrace](#), were able to keep development costs low and increase the number of affordable housing units by utilizing the city's reduced parking requirements.

Conclusions

This report indicates that generous, inflexible parking requirements are inefficient and inequitable, since they fail to provide an expensive resource (parking) in proportion to need (vehicle ownership). Parking demand varies between households, between neighborhoods, and over time for individual households. Smaller, lower income households located in accessible areas tend to own fewer cars. A typical house or apartment unit may at various times house residents with zero, one, two or three vehicles.

Parking is a costly resource. Parking typically represents 10-20% of the cost of housing. This cost may be acceptable to most middle and upper income households, which tend to own multiple vehicles and can afford the extra expense, but for lower income families generous parking requirements impose significant financial burdens.

Excessive parking requirements impose several costs on society. They increase development costs of lower-priced housing, reducing housing affordability. Minimum parking requirements are regressive because they force residents to pay for parking facilities, even if they do not own a vehicle. They increase vehicle ownership, and therefore problems such as traffic congestion, accidents and pollution emissions. Generous parking requirements discourage infill development and increase sprawl, increasing impervious surface coverage and per capita vehicle travel. They shift lower-income households to suburban and exurban areas where land prices are low but transport and public service costs are high.

For typical affordable housing in urban locations, where parking represents 20% of residential build costs and parking demand is less than 50% of conventional parking standards, applying more accurate and flexible parking requirements can reduce housing costs by 10%, and even more if additional parking management strategies are implemented. For households that do not own an automobile, more accurate parking requirements and unbundling parking costs can reduce rents by 10-20%.

Most households, including those with low incomes, own at least one vehicle and therefore need residential parking. Even non-drivers want parking for visitors. It is therefore important that parking policy reforms be realistic and avoid creating new problems. Better parking management practices have proven successful at reducing residential parking costs, increasing housing affordability and supporting other strategic land use objectives, such as supporting infill development, improving community accessibility and reducing sprawl. This involves creating more accurate and flexible parking standards, unbundling parking from building space so residents pay for parking facilities based on the number of spaces they actually use, and appropriate enforcement to minimize spillover problems.

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References and Resources

AARP (2008), *Opportunities for Creating Livable Communities*, Research Report, American Association for Retired Persons Public Policy Institute (www.aarp.org/ppi); at www.aarp.org/research/housing-mobility/indliving/inb155_communities.html.

Affordable Housing Design Advisor Website (www.designadvisor.org), sponsored by the U.S. Department of Housing and Urban Development, provides information on developing more affordable housing, redeveloping urban communities and implementing [Smart Growth](#).

Danielle Arigoni (2001), *Affordable Housing and Smart Growth: Making the Connections*, Subgroup on Affordable Housing, Smart Growth Network (www.smartgrowth.org) and National Neighborhood Coalition (www.neighborhoodcoalition.org).

Scott Bernstein, Carrie Makarewicz, Kara Heffernan, Albert Benedict and Ben Helphand (2004), *Increasing Affordability Through Reducing the Transportation and Infrastructure Cost Burdens of Housing*, Atlanta Neighborhood Development Partnerships (www.andpi.org); at www.andpi.org/uploadedFiles/pdf/03MICI%20MTC%20Report_CNT.pdf.

BLS (2003), *Consumer Expenditure Survey, 2002*, Bureau of Labor Statistics (www.bls.gov).

BTS (1996), *1995 National Personal Transportation Survey*, Bureau of Transportation Statistics (www.cta.ornl.gov).

Raymond Burby, et al (2000), "Building Code Enforcement Burdens and Central City Decline," *American Planning Association Journal*, Vol. 66, No. 2, Spring 2000, pp. 143-160.

Center for Neighborhood Technology (www.cnt.org) is a nonprofit organization that has performed extensive research and promotion of location-efficient development.

Robert Cervero (2006), "Transit-Based Housing in the San Francisco Bay Area: Market Profiles and Rent Premiums," *Transportation Quarterly*, Vol. 50, No. 3, Summer 1996, pp. 33-49.

Robert Cervero and Yu-Hsin Tsai (2003), *San Francisco City CarShare: Travel-Demand Trends and Second-Year Impacts*, Institute of Urban and Regional Development, University of California at Berkeley, Working Paper 2003-05 (www-iurd.ced.berkeley.edu).

Mark Childs (1998), *Parking Spaces: A Design, Implementation, and Use Manual for Architects, Planners, and Engineers*, McGraw Hill (www.booksite.com).

CNT (2006), *Paved Over: Surface Parking Lots or Opportunities for Tax-Generating, Sustainable Development?*, Center for Neighborhood Technology (www.cnt.org/repository/PavedOver-Final.pdf).

CNT (2008), *Housing + Transportation Affordability Index*, Center for Neighborhood Technology (<http://htaindex.cnt.org>).

CNU (2002), *Congress for the New Urbanism's Narrow Streets database* (www.sonic.net/abcaia/narrow.htm).

Parking Requirement Impacts on Housing Affordability
Victoria Transport Policy Institute

CNU (2008), *Parking Requirements and Affordable Housing*, Congress for the New Urbanism (www.cnu.org); at www.cnu.org/node/2241.

CTOD and CNT (2006), *The Affordability Index: A New Tool for Measuring the True Affordability of a Housing Choice*, Center for Transit-Oriented Development and the Center for Neighborhood Technology, Brookings Institute (www.brookings.edu/metro/umi/20060127_affindex.pdf).

CTOD (2008), *Capturing the Value of Transit*, Center for Transit-Oriented Development, Reconnecting America (www.reconnectingamerica.org); at www.reconnectingamerica.org/public/projects/318.

Matthew R. Cuddy (2007), *A Practical Method For Developing Context-Sensitive Residential Parking Standards*, Dissertation, Rutgers University (www.rutgers.edu); at http://transportation.northwestern.edu/news/2007/Cuddy_dissertation_final_cv.pdf.

Energy Pathways, Inc. (1994), *Condominium Apartment Parking Standards in Mississauga*, Canadian Mortgage and Housing Association (Ottawa; www.cmhc-schl.gc.ca).

Gina Filosa (2006), *Carsharing: Establishing its Role in the Parking Demand Management Toolbox*, Thesis, Urban and Environmental Policy and Planning, Tufts University (<http://ase.tufts.edu/uep>).

John Fregonese and Lynn Peterson (2002), *Correcting the Record: Comparing Development Policy in Portland, Oregon and Atlanta, Georgia*, Congress for the New Urbanism (www.cnu.org).

David B. Goldstein (1996), *Making Housing More Affordable Correcting Misplaced Incentives in the Lending System*, NRDC (www.nrdc.org).

Patrick H. Hare (1993), *Making Housing Affordable by Reducing Second Car Ownership*, Patrick Hare Planning and Design (Washington DC).

Patrick Hare (1995), *Clunker Mortgages and Transportation Redlining; How the Mortgage Banking Industry Unknowingly Drains Cities and Spreads Sprawl*, Hare Planning; available online (www.vtppi.org/clunker.pdf).

Kim Hoeveler (1997), "Accessibility vs. Mobility: The Location Efficient Mortgage," *Public Investment*, American Planning Asso. (Chicago; www.planning.org) and Center for Neighborhood Technology (www.cnt.org/lem).

John Holtzclaw (1994), *Using Residential Patterns and Transit to Decrease Auto Dependency and Costs*, NRDC (www.nrdc.org).

HUD (2008), "Parking Regulations and Housing Affordability," *Regulatory Barriers Clearinghouse*, Volume 7, Issue 2, US Department of Housing and Urban Development, (www.huduser.org); at www.huduser.org/rbc/newsletter/vol7iss2more.html.

Parking Requirement Impacts on Housing Affordability
Victoria Transport Policy Institute

HUD (2008), *Impact Fees & Housing Affordability: A Guide for Practitioners*, Office of Policy Development and Research, Department of Housing and Urban Development (www.huduser.org); at www.nmhc.org/Content/ServeFile.cfm?FileID=6877.

ITE (2004), *Parking Generation*, Institute of Transportation Engineers (www.ite.org).

Institute for Location Efficiency (www.locationefficiency.com) is an organization that works to encourage implementation of Location Efficient Development.

Wenya Jia and Martin Wachs (1998), "Parking and Affordable Housing," *Access*, Vol. 13, Fall 1998 (www.uctc.net), pp. 22-25.

Wenya Jia and Martin Wachs (1998), *Parking Requirements and Housing Affordability: A Case Study of San Francisco*, Research Paper 380, University of California Transportation Center (www.uctc.net); at www.uctc.net/scripts/countdown.pl?380.pdf.

Owen Jung (2009), *Who Is Really Paying For Your Parking Space? Estimating The Marginal Implicit Value Of Off-Street Parking Spaces For Condominiums In Central Edmonton*, Canada, Department Of Economics, University Of Alberta; at www.vtppi.org/jung_parking.pdf.

Leigh Ann King (2008), *Housing Affordability*, Sustainable Community Development Code, Research Monologue Series: Healthy Neighborhoods, Housing, Food System, Rocky Mountain Land Use Institute, Strum College of Law (<http://law.du.edu>); at <http://law.du.edu/images/uploads/rmlui/rmlui-sustainable-housingAffordability.pdf>.

Luke H. Klipp (2004), *The Real Costs Of San Francisco's Off-Street Residential Parking Requirements: An Analysis Of Parking's Impact On Housing Finance Ability And Affordability*, Transportation for a Livable City (www.livablecity.org); at www.livablecity.org/resources/Parking_Housing_Affordability_Final.pdf.

Marc Lee, Erick Villagomez, Penny Gurstein, David Eby and Elvin Wyly (2008), *Affordable EcoDensity: Making Affordable Housing a Core Principle of Vancouver's EcoDensity Charter*, Canadian Center for Policy Alternatives (www.policyalternatives.ca); at www.policyalternatives.ca/documents/BC_Office_Pubs/bc_2008/affordable_ecodensity.pdf.

Jonathan Levine (1998), "Rethinking Accessibility and Jobs-Housing Balance," *Journal of the American Planning Association*, Vol. 64, No. 2, Spring 1998, p. 147.

Jonathan Levine (2006), *Zoned Out: Regulation, Markets, and Choices in Transportation and Metropolitan Land-Use*, Resources for the Future (www.rff.org).

Barbara Lipman (2005), "Something's Gotta Give: Working Families and the Cost of Housing," *New Century Housing*, Volume 5, Issue 2, Center for Housing Policy; at www.nhc.org/pdf/pub_nc_sgg_04_05.pdf.

Barbara Lipman (2006), *A Heavy Load: The Combined Housing and Transportation Burdens of Working Families*, Center for Housing Policy (www.nhc.org/pdf/pub_heavy_load_10_06.pdf).

Todd Litman (2003), *Transportation Land Use Impacts*, *World Transport Policy & Practice*, Vol. 1, No. 4, 1995, pp. 9-16; at www.vtppi.org/landuse.pdf.

Parking Requirement Impacts on Housing Affordability
Victoria Transport Policy Institute

Todd Litman (2004), *Pavement Busters Guide*, Victoria Transport Policy Institute (www.vtppi.org); at www.vtppi.org/pavbust.pdf.

Todd Litman (2005), *Land Use Impacts on Transport: How Land Use Factors Affect Travel Behavior*, Victoria Transport Policy Institute (www.vtppi.org); at www.vtppi.org/landtravel.pdf.

Todd Litman (2006), *Parking Management: Strategies, Evaluation and Planning*, Victoria Transport Policy Institute (www.vtppi.org); at www.vtppi.org/park_man.pdf.

Todd Litman (2007), *Smart Growth Policy Reforms*, VTPI (www.vtppi.org); at www.vtppi.org/smart_growth_reforms.pdf.

Todd Litman (2007), *Transportation Affordability: Evaluation and Improvement Strategies*, VTPI (www.vtppi.org); at www.vtppi.org/affordability.pdf.

Todd Litman (2008), *Recommendations for Improving LEED Transportation and Parking Credits*, VTPI (www.vtppi.org); at www.vtppi.org/leed_rec.pdf.

Simon McDonnell, Josiah Madar and Vicki Been (2011), "Minimum Parking Requirements And Housing Affordability in New York City," *Housing Policy Debate*, Vol. 21, No. 1, January, pp. 45 – 68 (www.informaworld.com/smpp/content~content=a931285978~frm=abslink); based on *A Continuing Role for Minimum Parking Requirements in a Dense Growing City?*, Furman Center for Real Estate and Urban Policy; at http://lsr.nellco.org/cgi/viewcontent.cgi?article=1218&context=nyu_lewp.

MRSC, *Downtown Parking Solutions*, Municipal Research and Service Center of Washington (www.mrsc.org/Subjects/Transpo/Tpark/transsolut.aspx).

Arthur C. Nelson, Rolf Pendall, Casy Dawkins and Gerrit Knaap (2002), *The Link Between Growth Management and Housing Affordability: The Academic Evidence*, Brookings Institution Center on Urban and Metropolitan Policy (www.brook.edu/dybdocroot/es/urban/publications/growthmang.pdf).

Nelson/Nygaard Consulting (2002), *Housing Shortage / Parking Surplus*, Transportation and Land Use Coalition (www.transcoalition.org/southbay/housing_study/index.html).

NEMO Project (www.canr.uconn.edu/ces/nemo), addresses impervious surface impacts.

Newman and Jeff Kenworthy (1998), *Cities and Automobile Dependency*, Gower (Aldershot).

NPH (2003), *Community Acceptance Toolkit* (www.nonprofithousing.org/pages/housing-policy-and-advocacy/toolkits_community_acceptance.html), by the Non-Profit Housing Association of Northern California provides information on residential parking regulations, costs and management strategies to improve efficiency and increase housing affordability, including, *Contemporary Affordable Housing: What Is The Impact Of Parking* (www.nonprofithousing.org/pdf_toolkits/Parking-2-26.pdf) and *Myths and Facts About Parking Planning* (www.nonprofithousing.org/pdf_toolkits/mythsandfacts.pdf).

Mark Obrinsky and Debra Stein (2007), *Overcoming Opposition To Multifamily Rental Housing*, National Multi Housing Council (www.nmhc.org); at www.nmhc.org/Content/ServeFile.cfm?FileID=5717.

Parking Reform website (www.parkingreform.org) promotes various reforms, particularly parking pricing with revenues returned to local communities and businesses.

PAS (2009), *Parking Solutions: Essential Info Packet*, Planning Advisory Service, American Planning Association (www.planning.org): at www.planning.org/pas/infopackets. These packets consist of compilation of related documents that provide practical information on various parking management strategies, suitable for use by planners and developers. These include:

- *Parking Solutions* (130 pages) includes six documents that describe modern approaches to parking management.
- *Shared Parking* (133 pages) includes more than thirty documents concerning shared parking, parking in-lieu fees, parking requirement reductions and exemptions, and downtown district special parking requirements.
- *Green Parking Lot Design* (66 pages) includes three documents that describe ways to improve parking lot environmental performance including landscaping, stormwater management and reduced heat island effects.
- *Permeable Pavement and Bicycle Parking* (38 pages) includes five documents concerning the use of permeable parking lot pavement materials and five documents concerning bicycle parking requirements and design.

Rolf Pendall (2000), "Local Land Use Regulation and the Chain of Exclusion," *Journal of the American Planning Association*, Vol. 66, No. 2 (www.planning.org), Spring 2000, pp. 125-142.

Regulatory Barriers Clearinghouse (www.regbarriers.org), by the U.S. Department of Housing and Urban Development, supports efforts to reform policies affecting the development, maintenance, improvement, availability, and cost of affordable housing.

Lorien Rice (2004), *Transportation Spending by Low-Income California Households: Lessons for the San Francisco Bay Area*, Public Policy Institute of California (www.ppic.org/content/pubs/R_704LRR.pdf).

RICO (2006), *Why Isn't Rental Housing Being Built? What Needs to Change?* Greater Victoria's Real Estate and Construction Organizations, Housing Resource Center (www.housingaffordability.ca); at www.housingaffordability.ca/documents/canadian/RECO%20Rental%20Report.pdf.

RMLUI (2008), *Sustainable Community Development Code*, Rocky Mountain Land Use Institute, Strum College of Law (<http://law.du.edu>); at www.law.du.edu/index.php/rmlui/sustainable-community-development-code-main.

Ryan Russo (2001), *Planning for Residential Parking: A Guide For Housing Developers and Planners*, Non-Profit Housing Association of Northern California (www.nonprofithousing.org) and the Berkeley Program on Housing and Urban Policy (<http://urbanpolicy.berkeley.edu>); at www.nonprofithousing.org/pdf_toolkits/ParkingandHousing.pdf.

Jan Scheurer, *Car-Free Housing in European Cities*, ISTP (www.istp.murdoch.edu.au), undated.

Parking Requirement Impacts on Housing Affordability
Victoria Transport Policy Institute

Donald Shoup (1995), "An Opportunity to Reduce Minimum Parking Requirements," *Journal of the American Planning Association*, Winter 1995, pp. 14-28.

Donald C. Shoup (1999), "In Lieu of Required Parking," *Journal of Planning Education and Research*, Vol. 18, 1999, pp. 307-320.

Donald Shoup (1999), "The Trouble With Minimum Parking Requirements," *Transportation Research A*, Vol. 33, No. 7/8, Sept./Nov. 1999, pp. 549-574: at www.vtpi.org/shoup.pdf.

Donald Shoup (2005), *The High Cost of Free Parking*, Planners Press (www.planning.org).

Wallace Smith (1964), *The Low-Rise Speculative Apartment*, Research Report 25, University of California Center for Real Estate and Urban Economics (Berkeley).

SPUR (1998), *Reducing Housing Costs by Rethinking Parking Requirements*, The San Francisco Planning and Urban Research Association (www.spur.org).

Vergil G. Stover and Frank J. Koepke (2002), *Transportation and Land Development*, Second Edition, Institute of Transportation Engineers (www.ite.org).

Ray Tomalty and Murtaza Haider (2008), *Housing Affordability and Smart Growth in Calgary*, Plan-It Calgary, City of Calgary (www.calgary.ca); at www.calgary.ca/docgallery/BU/planning/pdf/plan_it/housing_afford_and_smarth_growth_report.pdf.

ULI (2009), *Beltway Burden: The Combined Cost of Housing and Transportation in the Greater Washington, DC Metropolitan Area*, ULI Terwilliger Center for Workforce Housing, Urban Land Institute (www.uli.org); at <http://commerce.uli.org/misc/BeltwayBurden.pdf>.

The *Urban Land Institute* (www.uli.org) is a professional organization for developers that provides a variety of resources for affordable housing planning and development, including reports such as *Ten Principles for Developing Affordable Housing* and *Best Practices in the Production of Affordable Housing*.

VTPI (2005), *Online TDM Encyclopedia* (www.vtpi.org/tdm).

Robert W. Wassmer and Michelle C. Baass (2005), *Does a More Centralized Urban Form Raise Housing Prices*, APPAM "Suburbanization and its Discontents" conference; *Journal of Policy Analysis and Management* (forthcoming); California State University Sacramento (www.csus.edu/indiv/w/wassmerr/WassmerBaassSprawlHousing.pdf).

Robert Weant and Herbert Levinson (1991), *Parking*, Eno Foundation (Lansdowne).

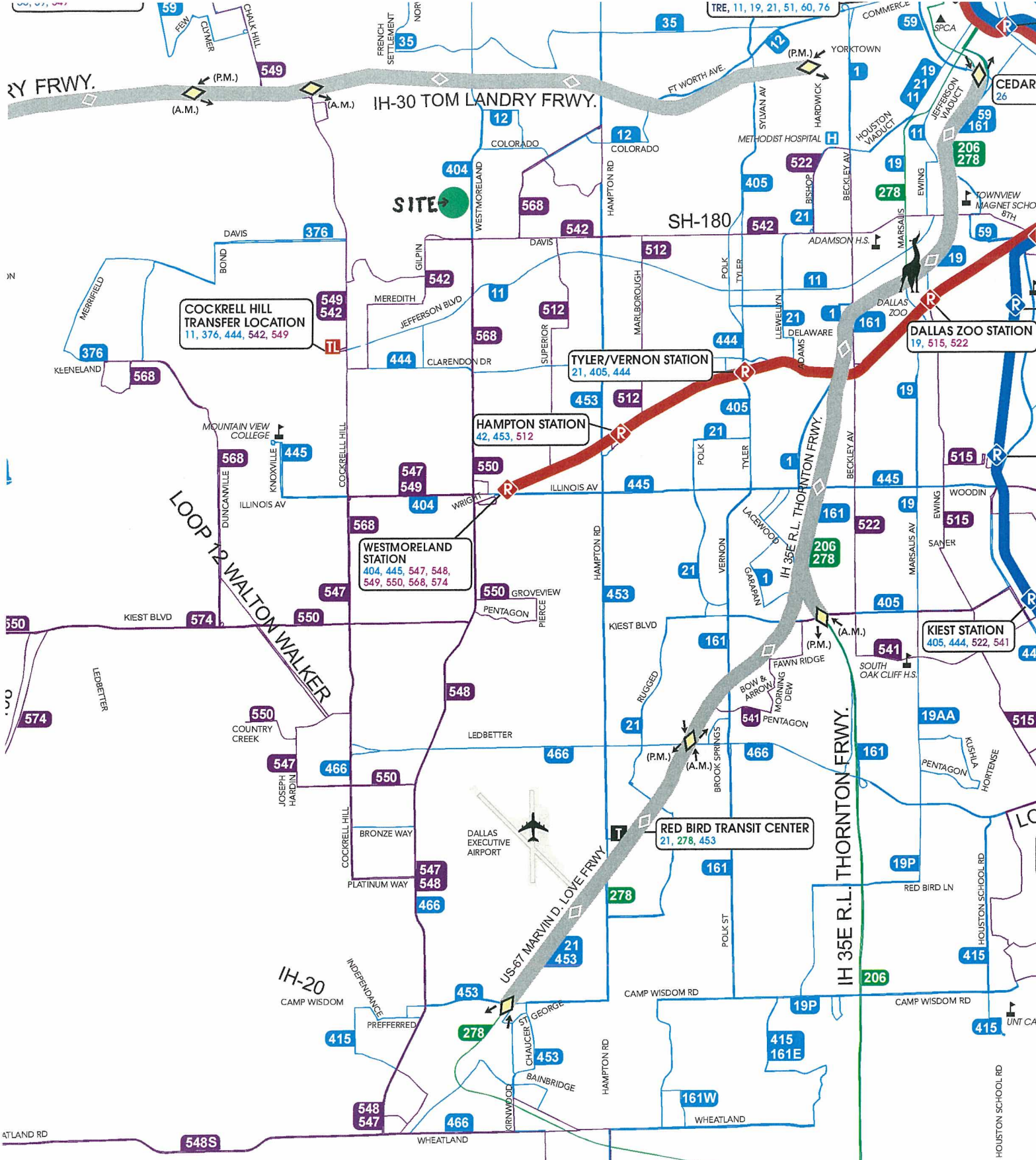
Federick Wegmann (1985), *Cost-Effectiveness of Private Employer Ridesharing Programs, An Employer's Assessment*, Transportation Center, University of Tennessee, 1985.

WCEL (2004), *Smart Bylaws Guide*, West Coast Environmental Law Foundation (www.wcel.org/issues/urban/sbg).

Parking Requirement Impacts on Housing Affordability
Victoria Transport Policy Institute

Richard Willson (1995), "Suburban Parking Requirements," *Journal of the American Planning Association*, Vol. 61, No. 1, Winter 1995, pp. 29-42.

www.vtppi.org/park-hou.pdf



Duncanville

BDA 101-035

MARVIN D. LOVE FRWY.

(C)

2-95

GLENN HEIGHTS PARK AND RIDE
206, DART ON-CALL

A



City of Dallas

APPLICATION/APEAL TO THE BOARD OF ADJUSTMENT

Case No.: BDA 101-035

Data Relative to Subject Property:

Date: _____

Location address: 4512/4200 West Davis Street Zoning District: P.D. 811, Tract D

Lot No.: 2 Block No.: 7212 Acreage: 4.867 acres Census Tract: 107.01

Street Frontage (in Feet): 1) 487.63 2) _____ 3) _____ 4) _____ 5) _____ *5019A*

To the Honorable Board of Adjustment :

Owner of Property/or Principal: SLF III - The Canyon in Oak Cliff, L.P.

Applicant: Jackson Walker L.L.P., Jonathan Vinson Telephone: (214) 953-5941

Mailing Address: 901 Main Street, Suite 6000, Dallas, Texas Zip Code: 75202

Represented by: Jackson Walker L.L.P., Jonathan Vinson Telephone: (214) 953-5941

Mailing Address: 901 Main Street, Suite 6000, Dallas, Texas Zip Code: 75202

Affirm that a request has been made for a Variance , or Special Exception , of to the off-street parking regulations for a 19.3% reduction from 166 spaces required to 134 spaces provided. = 32 spaces

Application is now made to the Honorable Board of Adjustment, in accordance with the provisions of the Dallas Development Code, to grant the described request for the following reason:

The variance should be granted as not contrary to the public interest because, owing to special conditions, a literal enforcement of Chapter 51A and P.D. 811 would result in unnecessary hardship, and so that the spirit of the ordinance will be observed and substantial justice done, all of which will be documented and elaborated upon further by the applicant in additional items to be submitted to the City Staff.

Note to Applicant: If the relief requested in this application is granted by the Board of Adjustment, said permit must be applied for within 180 days of the date of the final action of the Board, unless the Board specifically grants a longer period.

Respectfully submitted: Jonathan G. Vinson Applicant's name printed *Jonathan G. Vinson* Applicant's signature

Affidavit

Before me the undersigned on this day personally appeared Jonathan G. Vinson who on (his/her) oath certifies that the above statements are true and correct to his/her best knowledge and that he/she is the owner/or principal/or authorized representative of the subject property.

Jonathan G. Vinson
Affiant (Applicant's signature)

Subscribed and sworn to before me this 25th day of February, 2011

Michael L. Hair
Notary Public in and for Dallas County, Texas



MEMORANDUM OF
ACTION TAKEN BY THE
BOARD OF ADJUSTMENT

Date of Hearing _____

Appeal was--Granted OR Denied

Remarks _____

Chairman

Building Official's Report

I hereby certify that Jonathan Vinson

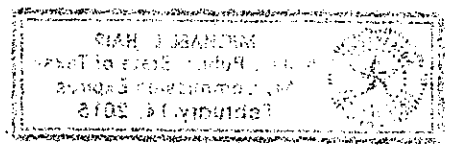
did submit a request for a variance to the parking regulations

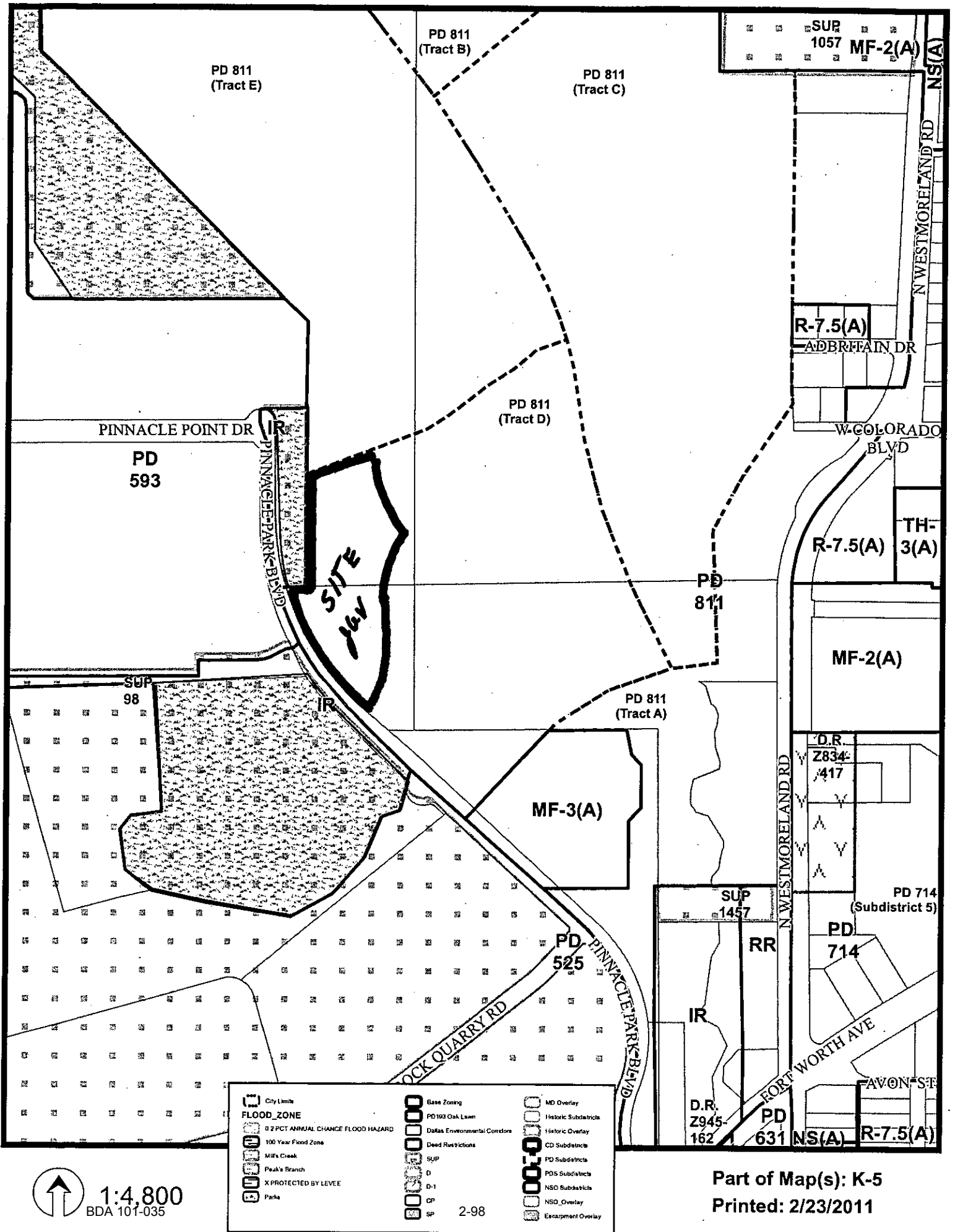
at 4512 W. Davis Street

BDA101-035. Application of Jonathan Vinson for a variance to the parking regulations at 4512 W. Davis Street. This property is more fully described as Lot 2 in city block 7212, and is zoned PD-811Tract D, which requires parking to be provided. The applicant proposes to construct a residential structure for multifamily use and provide 134 of the required 166 parking spaces, which will require a 32 space variance (19.3% reduction) to the parking regulations.

Sincerely,

Batsheba Antebi
Batsheba Antebi, Building Official





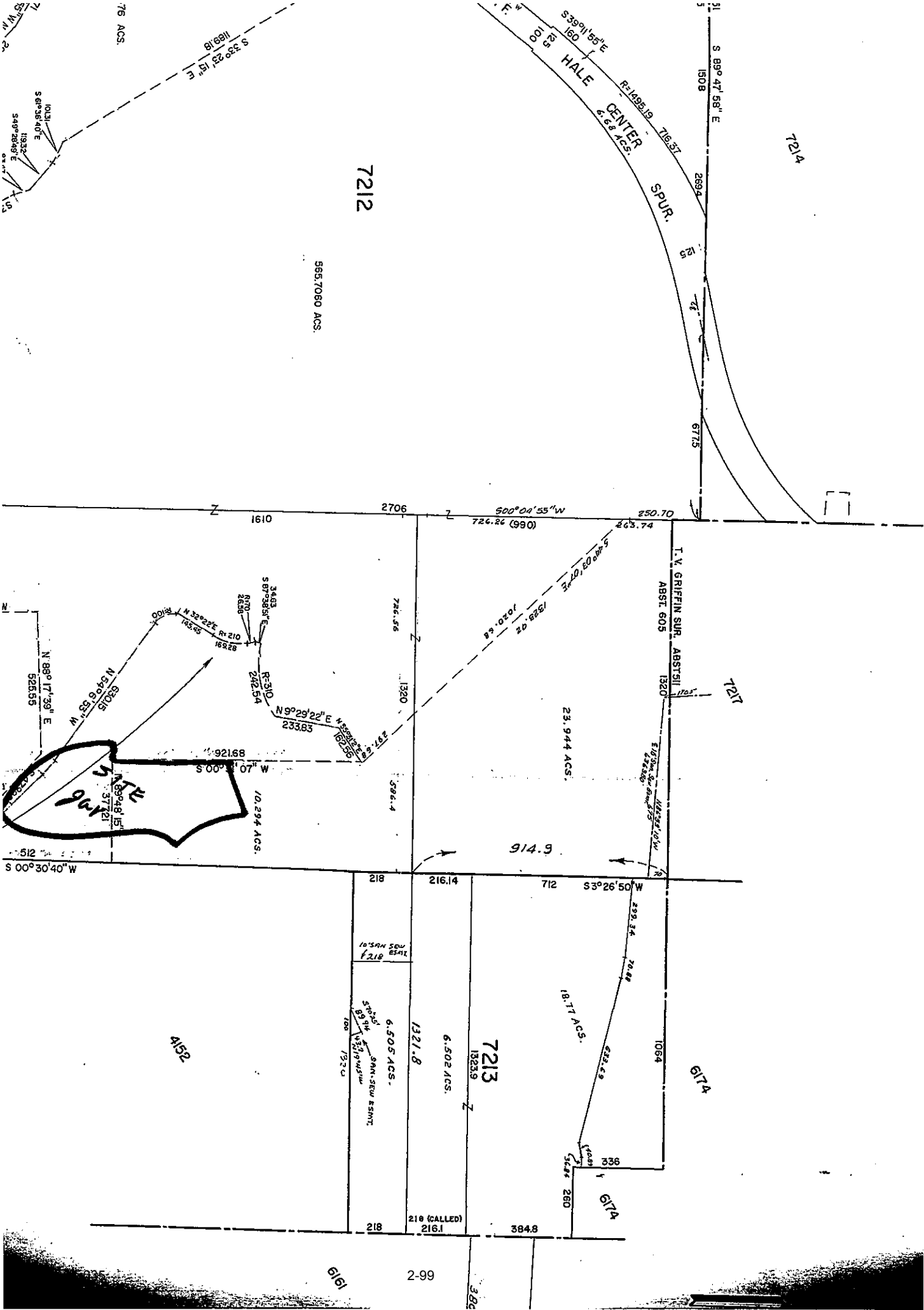
	City Limits		Base Zoning		MD Overlay
	FLOOD_ZONE		PD 193 Oak Lawn		Historic Subdistrict
	0.2 PCT ANNUAL CHANCE FLOOD HAZARD		Dallas Environmental Corridor		Historic Overlay
	100 Year Flood Zone		Deed Restrictions		CD Subdistrict
	Mill's Creek		SUP		PD Subdistrict
	Peak's Branch		D		POS Subdistrict
	X PROTECTED BY LEVEE		D-1		NSO Subdistrict
	Parks		CP		NSO Overlay
			SP 2-98		Escapment Overlay

1:4,800

 BDA 101-035

Part of Map(s): K-5

 Printed: 2/23/2011



7212

565,7080 ACS.

7214

T.V. GRIFFIN SUR. ABSTAIL

ABST. 605

964

7213

6,502 ACS.

6,505 ACS.

30M. SEW. ESMT.

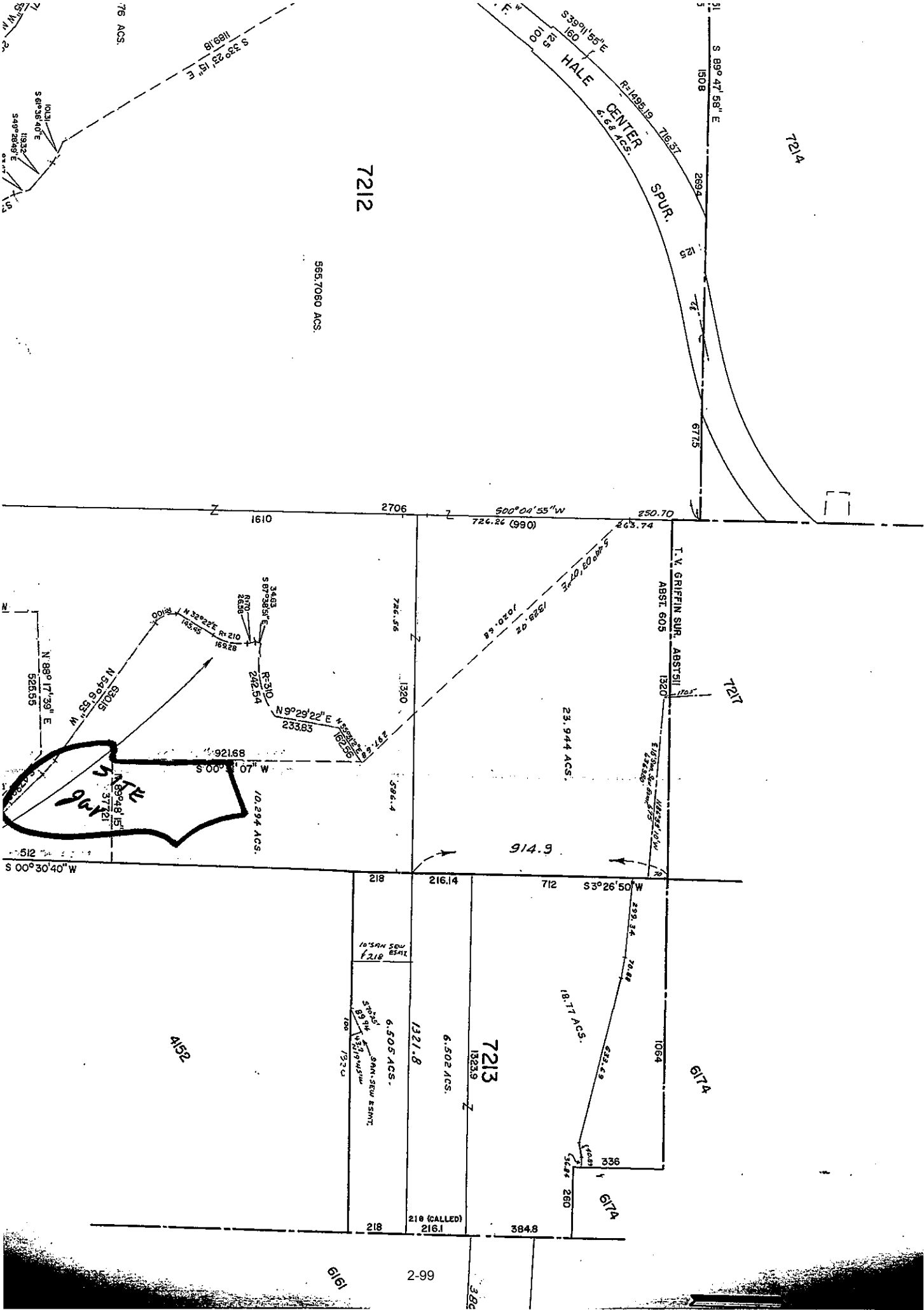
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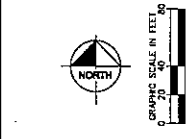
Project No.	101-035
Date	12/15/2011
Client	Kimley-Horn and Associates, Inc.
Drawn by	DBS
Checked by	DBS
Reviewed by	DBS
Scale	AS SHOWN

DEVELOPMENT PLAN

HILLSIDE WEST
DALLAS, TEXAS

12700 Pines Creek Drive, Suite 1000
Dallas, Texas 75244
Tel: (972) 770-1200
Fax: (972) 770-1203

No.	Date	Revisions

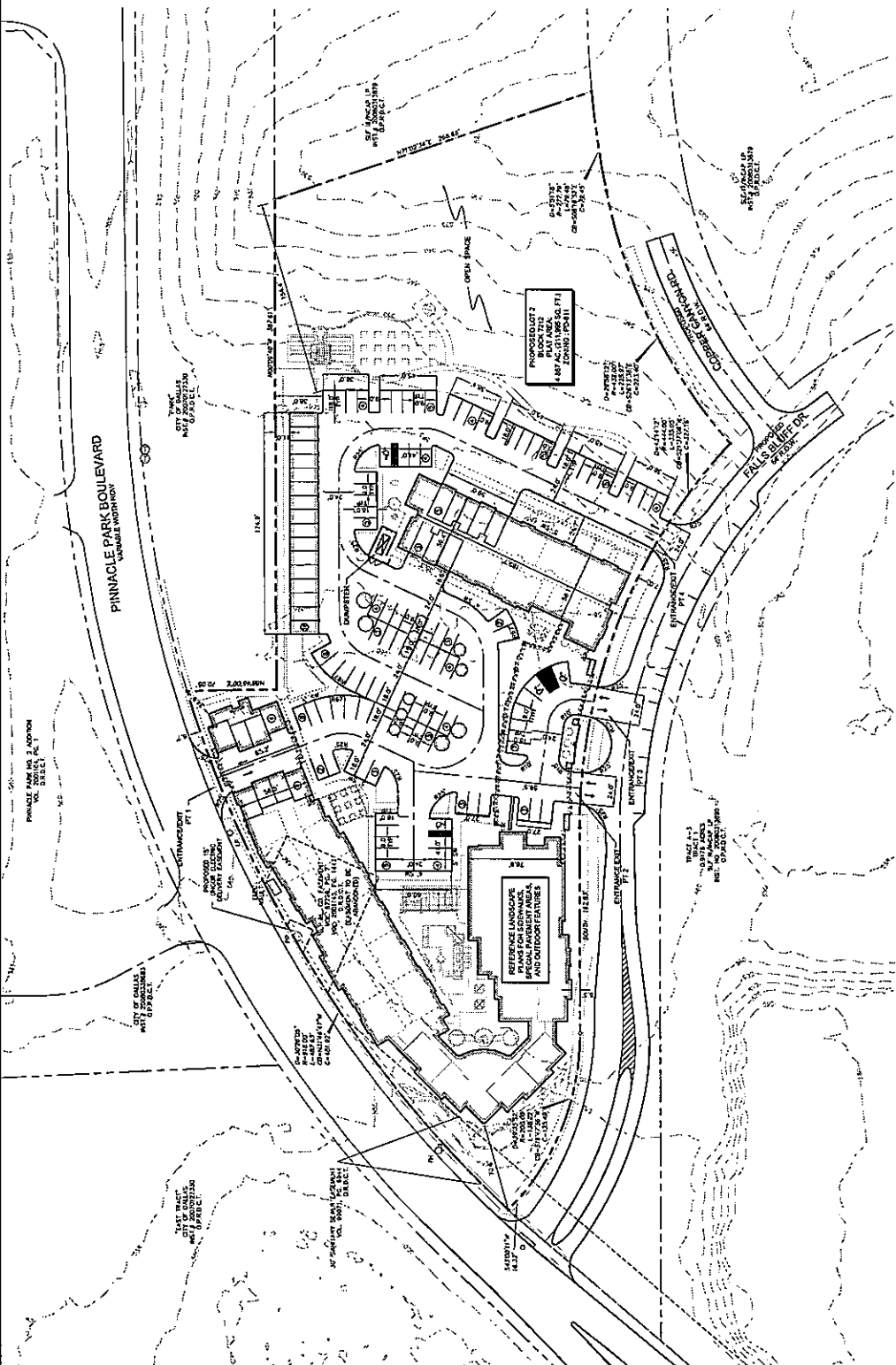


SITE DATA	
TOTAL SITE AREA (GROSS)	211,895 S.F. 4.867 AC.
PARK AREA	53,855 S.F. 1,468 AC.
TOTAL SITE AREA (NET) (EXCEPTING PARK)	148,140 S.F. 3,401 AC.
MAIN BUILDING	42,723 S.F. 0.981 AC.
DETACHED GARAGE	4,000 S.F. 0.092 AC.
FOOTPRINT AREA	46,723 S.F. 1,073 AC.
PAVEMENT AREA	62,161 S.F. 1,427 AC.
TOTAL SITE IMPERVIOUS AREA	108,864 S.F. 2,490 AC.
PERVIOUS AREA (DEVELOPED AREA)	39,236 S.F. 0.901 AC.
PERVIOUS AREA (OPEN SPACE)	63,895 S.F. 1,466 AC.
TOTAL SITE PERVIOUS AREA	103,091 S.F. 2,367 AC.

UNIT DATA	
TOTAL NUMBER OF UNITS	130 UNITS
UNIT DENSITY (130 / 4,867)	26.7 UNITS PER ACRE
BUILDING HEIGHTS	45'-2' TO 104' FLOOR T.O.P.

PARKING DATA	
PARKING PROVIDED:	MULTIPLY BY 1.50 1,500 + 165 SP TOTAL PROVIDED = 1,665 SP
PARKING REQUIRED:	1,500 + 165 SP 1,500 + 165 SP TOTAL REQUIRED = 1,665 SP
STANDARD	16 SP
HANDICAP (2% MIN)	(2.4%) 4 SP
GARAGE (ATTACHED)	18 SP
(DETACHED)	16 SP
TOTAL PARKING PROVIDED	1,665 SP
TOTAL PARKING REQUIRED	1,665 SP
DIFFERENCE	0 SP
PERCENTAGE DIFFERENCE	0.0%
PERCENTAGE REDUCTION	0.0%

LEGEND	
[Symbol]	BUILDING OUTLINE
[Symbol]	BUILDING OUTLINE - GROUND FLOOR
[Symbol]	BUILDING OUTLINE - SECOND FLOOR



UNIT TYPE	BUILDING ANALYSIS				TOTAL UNITS
	NUMBER OF BUILDING AREAS	NET SF	FLOOR AREA (FLOOR)	NUMBER OF UNITS	
A1	1	705	727	3	3
A2	1	705	727	3	3
A3	1	705	727	3	3
A4	1	705	727	3	3
A5	1	705	727	3	3
A6	1	705	727	3	3
A7	1	705	727	3	3
A8	1	705	727	3	3
A9	1	705	727	3	3
A10	1	705	727	3	3
A11	1	705	727	3	3
A12	1	705	727	3	3
A13	1	705	727	3	3
A14	1	705	727	3	3
A15	1	705	727	3	3
A16	1	705	727	3	3
A17	1	705	727	3	3
A18	1	705	727	3	3
A19	1	705	727	3	3
A20	1	705	727	3	3
A21	1	705	727	3	3
A22	1	705	727	3	3
A23	1	705	727	3	3
A24	1	705	727	3	3
A25	1	705	727	3	3
A26	1	705	727	3	3
A27	1	705	727	3	3
A28	1	705	727	3	3
A29	1	705	727	3	3
A30	1	705	727	3	3
A31	1	705	727	3	3
A32	1	705	727	3	3
A33	1	705	727	3	3
A34	1	705	727	3	3
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A36	1	705	727	3	3
A37	1	705	727	3	3
A38	1	705	727	3	3
A39	1	705	727	3	3
A40	1	705	727	3	3
A41	1	705	727	3	3
A42	1	705	727	3	3
A43	1	705	727	3	3
A44	1	705	727	3	3
A45	1	705	727	3	3
A46	1	705	727	3	3
A47	1	705	727	3	3
A48	1	705	727	3	3
A49	1	705	727	3	3
A50	1	705	727	3	3
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A64	1	705	727	3	3
A65	1	705	727	3	3
A66	1	705	727	3	3
A67	1	705	727	3	3
A68	1	705	727	3	3
A69	1	705	727	3	3
A70	1	705	727	3	3
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A79	1	705	727	3	3
A80	1	705	727	3	3
A81	1	705	727	3	3
A82	1	705	727	3	3
A83	1	705	727	3	3
A84	1	705	727	3	3
A85	1	705	727	3	3
A86	1	705	727	3	3
A87	1	705	727	3	3
A88	1	705	727	3	3
A89	1	705	727	3	3
A90	1	705	727	3	3
A91	1	705	727	3	3
A92	1	705	727	3	3
A93	1	705	727	3	3
A94	1	705	727	3	3
A95	1	705	727	3	3
A96	1	705	727	3	3
A97	1	705	727	3	3
A98	1	705	727	3	3
A99	1	705	727	3	3
A100	1	705	727	3	3
TOTAL UNITS					130
TOTAL					130
NUMBER OF BUILDING AREAS					104
NUMBER OF BUILDING AREAS					104
NET GROSS S.F. FOR BLDGS					104,000

**PARKING ANALYSIS FOR
HILLSIDE WEST SENIOR AFFORDABLE
MULTIFAMILY DEVELOPMENT
IN DALLAS, TEXAS**

Prepared for:

GroundFloor Development

3109 Knox Street #305
Dallas, Texas 75205

Prepared by:

DeShazo Group, Inc.

400 South Houston Street
Suite 330 • Union Station
Dallas, Texas 75202
Phone (214) 748-6740

March 9, 2011



Traffic. Transportation Planning. Parking. Design.

Texas Registered Firm – 3199

DeShazo #11031



Traffic. Transportation Planning. Parking. Design.

400 S. Houston Street, Suite 330

Dallas, TX 75202

ph. 214.748.6740

deshazogroup.com

Technical Memorandum

To: Mr. Brandon Bolin, Esq. — *GroundFloor Development*
From: DeShazo Group, Inc.
Date: March 9, 2011
Re: **Parking Analysis for Hillside West Senior Affordable Multifamily Development in Dallas, Texas** *DeShazo Project No. 11031*

INTRODUCTION

The services of **DeShazo Group, Inc** (DeShazo) were retained by **GroundFloor Development** to analyze the parking needs for a proposed senior affordable multifamily development. DeShazo is an engineering consulting firm based in Dallas, Texas, providing licensed engineers skilled in the field of traffic/transportation engineering and parking design and analysis.

Project Description

The subject 4.867-acre site is located at 4512 West Davis Street in Dallas, Texas (City Block 7212, Lot 2). It is part of Tract D of Planned Development District 811 (PD 811) and is subject to parking requirements set forth in Section 51P-811.119. The proposed Hillside West senior affordable multifamily development consists of 130 dwelling units. A supply of 134 off-street parking spaces is proposed.

Purpose

Findings of this study are intended to provide the basis for a Variance request to reduce the direct parking requirements for the proposed development. This memorandum summarizes the code parking requirement and the projected parking demand based upon published national technical data by the Institute of Transportation Engineers (ITE) and DeShazo's professional judgment and experience from prior parking studies. The study will be provided to the City of Dallas staff ("the Staff") for technical review to consider in the Variance request.

*Parking Analysis for Hillside West
Senior Affordable Multifamily Development
Page 1*

CODE PARKING REQUIREMENT

The proposed multifamily development is subject to parking requirements set forth in Section 119 of PD 811. The respective parking rates were applied to the proposed development plan; results are tabulated as follows.

Table 1. Base Parking Requirement Summary per PD 811

LAND USE	QUANTITY	PARKING RATE <i>§51P-811.119</i>	REQUIRED PARKING
Multifamily			
<i>1-bedrooms</i>	58 Units	1.0 space/DU	58.0
<i>2-bedrooms</i>	72 Units	1.5 space/DU	108.0
Off-street Parking Requirement:			166 spaces
Proposed Parking Supply:			134 spaces
Resulting Surplus/(Deficit):			(32 or 19%)

As shown in **Table 1** above, 166 spaces are required to satisfy the base code parking requirement as per direct application of PD 811. The proposed parking supply of 134 off-street spaces would result in a deficit of thirty-two off-street parking spaces

DeShazo’s professional experience in the analysis of parking demand characteristics justifies further consideration than is provided by direct application of the codes for certain land uses. In some cases, parking code criteria are based upon outdated premises or worst-case scenarios that are not applicable to individual developments. This study herein describes the technical basis of the parking reduction request for the proposed project.

PARKING DEMAND STUDY

The proposed development possesses two unique characteristics that effect parking demand: “affordable” and “senior”. “Affordable housing is a designation governed by the Department of the Treasury Low Income Housing Tax Credit Program and is administered in Texas by the Texas Department of Housing and Community Affairs (TDCHA). This program entails strict federal guidelines that must be followed. Rents of the units are based upon residents earning less than 60% of the Area Median Income. Additionally, the proposed development is “senior” housing facility, which is restricted to residents age 55 or older. This restriction is also governed by the TDHCA. (NOTE: Depending upon the financing for the project, this age restriction may increase to 62 or older.) Most residents of this category of housing are retired from full-time employment or otherwise not employed.

While published data from industry manuals are not available for this use, the individual traits can be shown to generate reduced parking demand. The following sections describe how each of these factors result in a lower parking demand ratio than is otherwise required by PD 811.

Affordable Housing

DeShazo has conducted numerous parking accumulation studies for multifamily uses throughout the Dallas metropolitan area. Table 2 provides a summary of selected parking demand studies conducted at three representative properties in the Dallas metropolitan area that, while not specific to senior housing, are examples of the parking demand for affordable multifamily development that similar in character and scale to the proposed development.

Table 2. DeShazo Multifamily Parking Demand Analysis Historical Database

Name of Property (Location)	Date of Study	Total Number of Dwelling Units	Observed Vehicles Parked on Site*	Parking Demand per Dwelling Unit
Madison Point Apts. (Southeast Dallas)	12/06/09	176	173	0.98
Rosemont at Lakewest (Southeast Dallas)	12/06/09	151	123	0.81
Reese Court Villas (South Dallas)	12/06/09	80	70 (+26 enclosed one-car garages, assumed 100% occupied)	1.20
AVERAGE	—	[407]	[392]	0.96

NOTE: During this data collection, all vehicles parked on site and on nearby streets (including residents and visitors) that may be reasonably associated with the subject property were included in the study. All parking accumulation data were collected between the hours of 12:00 AM and 5:00 AM on weekdays in order to capture the overall peak demand when the maximum number of residents are parked on site.¹

The results provided in Table 2 illustrates that the average parking demand for the studied affordable housing projects is less than 1.0 parked vehicle per dwelling unit. The planned supply at the proposed Hillside West senior affordable multifamily development provides 1.03 parking spaces per dwelling unit. On this basis, the planned parking supply is expected to satisfy the parking needs for an affordable housing development.

Senior Housing

In order to demonstrate the parking characteristics of senior housing, DeShazo consulted parking demand data published by the Institute of Transportation Engineers (ITE) in the *Parking Generation* manual, 4th Edition (2010). ITE *Parking Generation* is a compilation of actual parking generation data by land use as collected over several decades by credible sources across the country, and is a common reference manual for determining parking demand characteristics of various land uses.

For the proposed development, the most compatible land use definition provided by ITE is for "Senior Adult Housing-Attached" (Land Use Code: 252), which is defined as follows:

¹ Based upon hourly parking characteristics published in studies by the *Urban Land Institute* and the *Institute of Transportation Engineers* and documented in private studies by DeShazo, multifamily residential parking demand is highest between the hours of 12:00 AM and 6:00 AM.

“Senior adult housing consists of attached independent living development, including retirement communities, age-restricted housing and active adult communities. These developments may include limited social or recreational services. However, they generally lack centralized dining and on-site medical facilities. Residents in these communities live independently, are typically active (requiring little to no medical supervision) and may or may not be retired.”

This category, while not exclusive to affordable housing, is considered an appropriate classification for comparison to the proposed development.

Table 3 summarizes the projected ITE parking demand for the subject property considered here.

Table 3. Projected Parking Based on ITE Parking Generation

LAND USE: 252	AMOUNT	AVERAGE PEAK PERIOD PARKING DEMAND RATE	PROJECED DEMAND (spaces)
Senior Adult Housing—Attached	130 DU	Weekday: 0.59 spaces/DU	76.7
TOTAL:			77 spaces

As shown in Table 3 above, the projected peak parking demand for the proposed senior, affordable multifamily development, based upon published ITE data, justifies a lower parking supply than would be required by direct application of PD 811.

CONCLUSION

The purpose of this study was to analyze the parking needs for the proposed senior, affordable housing, multifamily development in order to establish a reduction of the off-street parking requirements.

This study summarizes the default code parking requirement and the projected parking demand for the proposed 130-dwelling unit development at 4512 West Davis Street in Dallas, Texas. Based upon application of the standard Code parking requirements from PD 811 (§51P.811-119), 166 parking spaces would typically be required for the development. The parking reduction request would allow the Owner to construct 134 parking spaces—a reduction from code of thirty-two spaces, or nineteen percent.

For a senior, affordable housing, multifamily development, such as is planned on the subject site, the parking demand characteristics are notably different than the traditional multifamily land use referenced in PD 811. Published parking demand data for this particular combination of characteristics is not readily available, so this study evaluated the two elements separately. Based upon actual observed parking demand collected by DeShazo, “affordable” multifamily projects generate a peak parking demand of less than 1.0 vehicle per dwelling unit. Additionally, senior housing generates an average peak parking demand of less than 0.6 vehicle per dwelling unit based upon data published by the *ITE Parking Generation* manual, 4th Edition (2010). The proposed

request would generate a parking supply of more than 1.0 spaces per dwelling unit, which is in excess of the projected parking demand for the development under either condition.

As a result of these parking characteristics, the Owner is requesting a Parking Variance that would allow a reduction of thirty-two spaces from the default parking code requirement.

The objective of this memorandum is to provide technical support for the proposed Parking Variance. Based upon the results of this technical analysis and DeShazo's professional judgment and experience from similar, prior parking studies, approval of the parking reduction is recommended.

REQUEST

The subject of this study is a request to construct a parking supply of 134 spaces for the proposed affordable, senior housing, multifamily development. This request is thirty-two spaces less than the base code parking requirement of 166 spaces.

Based upon the findings of this analysis, a parking supply of 134 spaces (or 80.7% of the Code required parking) will satisfy the parking needs for the proposed senior affordable multifamily development. A reduction of thirty-two required spaces (approximately 19.3%) for 4512 West Davis Street is warranted based upon the following considerations specified in the Dallas Development Code §51A-4.311(a)(2):

(A) The extent to which the parking spaces provided will be remote, shared, or packed parking.

Off-street parking supply will be provided on-site and will be exclusive for residents and visitors, 24 hours a day.

(B) Parking demand and trip generation characteristics of all uses for which an exception is requested.

The projected parking demand takes into consideration the needs of all residents and visitors based upon empirical data collected at various residential developments throughout the Dallas metropolitan area further validated by national published data of more specifically similar land uses published by the ITE *Parking Generation* manual, 4th edition.

(C) Whether the subject property is part of a modified delta overlay district.

The requested parking reduction is based upon the site's multifamily parking demand characteristics and is not based upon any special zoning adjustments.

(D) The current and probably future capacities of adjacent and nearby streets based upon the city's thoroughfare plan.

The surrounding street system is generally constructed to the anticipated ultimate plans. The site provides ample site access to the surrounding roadway network.

(E) The availability of public transit and the likelihood of its use.

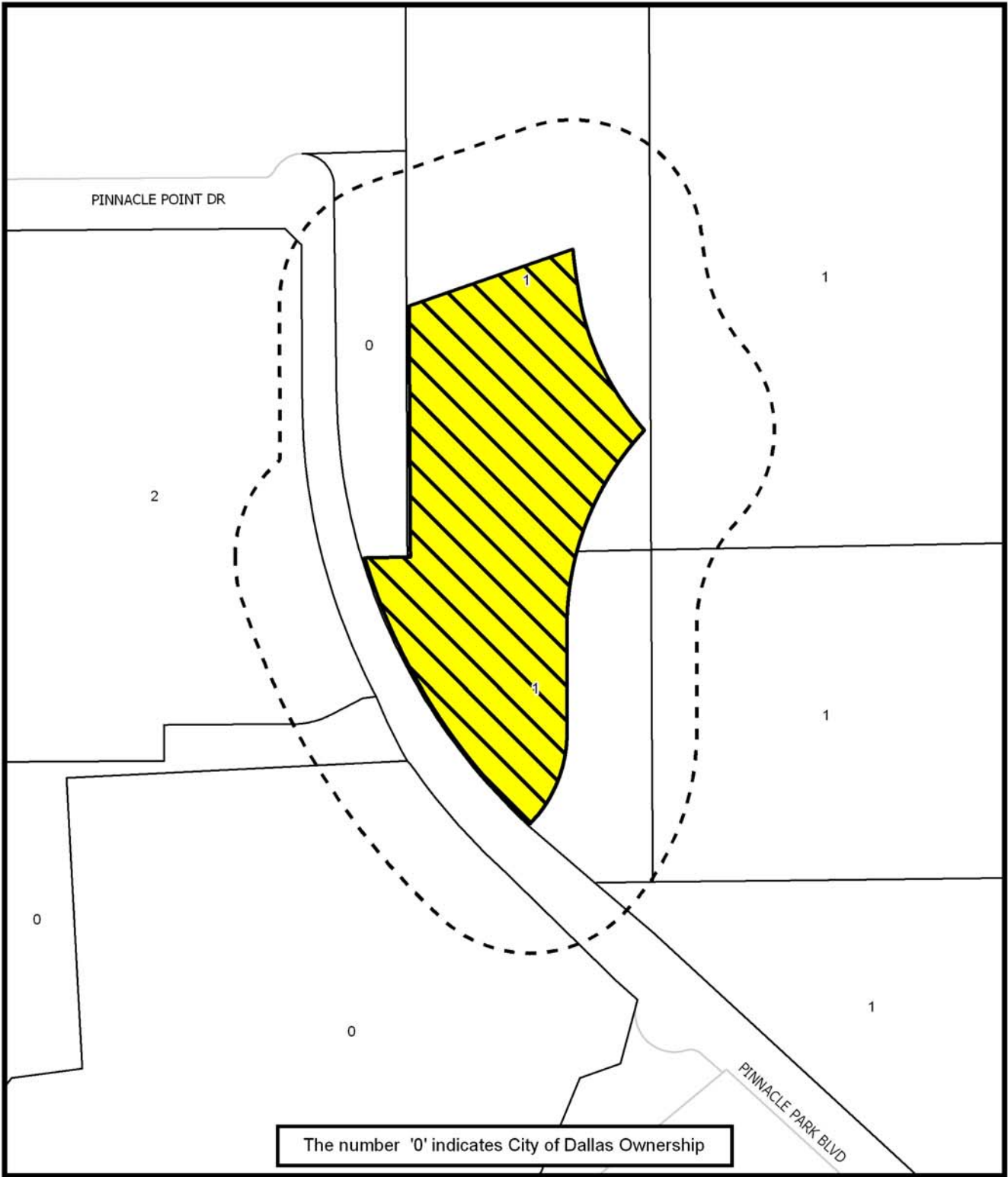
The site is currently served by three DART public transit bus routes (404, 542, and 568). In addition, it is located within walking distance of several other bus routes that also connect to DART Rail System's Red Line (Westmoreland Station, Westmoreland Road at Illinois Avenue). Public transit provides an attractive alternative mode of transportation for residents of this multifamily residential development.

(F) The feasibility of parking mitigation measures and the likelihood of their effectiveness.

DART public transit is a parking mitigation measure as it presents a viable transportation alternative for many residents.

It is our opinion that the requested parking reduction will not create a traffic hazard nor restrict the parking operations during typical peak hours. It is presumed that it is in the best interest of the property owners to provide an appropriate parking environment to their residents.

END OF MEMO



1:2,400

NOTIFICATION

200' AREA OF NOTIFICATION
2 NUMBER OF PROPERTY OWNERS NOTIFIED

Map no: **K-5**
 Case no: **BDA101-035**

DATE: April 01, 2011

Notification List of Property Owners

BDA101-035

2 Property Owners Notified

Label #	Address	Owner
1	4512 WESTMORELAND	SLF III/INCAP LP
2	3700 PINNACLE PARK	MEPT GATEWAY PINNACLE PK % MULTI EMPLOYER PPTY TR

FILE NUMBER: BDA 101-036

BUILDING OFFICIAL'S REPORT:

Application of Tommy Mann, Winstead, PC, for a special exception to the off-street stacking space regulations at 13330 Preston Road. This property is more fully described as Lot 1 in City Block 7438 and is zoned RR which requires off-street stacking spaces to be provided. The applicant proposes to construct and maintain a financial institution with drive through window use and provide 10 of the required 12 off-street stacking spaces which will require a special exception of 2 spaces.

LOCATION: 13330 Preston Road

APPLICANT: Tommy Mann, Winstead, PC,

REQUEST:

- A special exception to the off-street stacking space regulations of 2 off-street stacking spaces (or a 17 percent reduction of the off-street stacking space requirement) is requested in conjunction with constructing and maintaining an approximately 3,800 square foot financial institution with drive-in window use (Chase Bank). The applicant proposes to provide 10 (or 83 percent) of the 12 off-street stacking spaces required by code.

STAFF RECOMMENDATION:

Approval, subject to the following conditions:

1. The special exception of 2 off-street stacking spaces shall automatically and immediately terminate if and when the financial institution with drive-in window use is changed or discontinued.
2. Compliance with the submitted revised site plan is required.

Rationale:

- The Sustainable Development Department Project Engineer has no objections to this request with the condition imposed that the applicant complies with the revised submitted site plan.
- The applicant has substantiated how the stacking demand generated by the proposed financial institution with drive-in window use does not warrant the number of off-street stacking spaces required, and the special exception would not create a traffic hazard or increase traffic congestion on adjacent and nearby streets.

STANDARD FOR A SPECIAL EXCEPTION TO THE OFF-STREET STACKING SPACE REGULATIONS:

- 1) The Board of Adjustment may grant a special exception to authorize a reduction in the number of off-street stacking spaces required under this article if the board finds, after a public hearing, that the stacking demand generated by the use does not warrant the number of off-street stacking spaces required, and the special exception would not create a traffic hazard or increase traffic congestion on adjacent and nearby streets. The maximum reduction authorized by this section is two spaces for each of the first two drive-through windows, if any, or 25 percent of the total number of required spaces, whichever is greater, minus the number of spaces currently not provided due to already existing nonconforming rights.
- 2) In determining whether to grant a special exception, the board shall consider the following factors:
 - (A) The stacking demand and trip generation characteristics of all uses for which the special exception is requested.
 - (B) The current and probable future capacities of adjacent and nearby streets based on the city's thoroughfare plan.
 - (C) The availability of public transit and the likelihood of its use.
- 3) In granting a special exception, the board shall specify the use or uses to which the special exception applies. A special exception granted by the board for a particular use automatically and immediately terminates if and when that use is changed or discontinued.
- 4) In granting a special exception, the board may:
 - (A) establish a termination date for the special exception or; otherwise provide for the reassessment of conditions after a specified period of time;
 - (B) impose restrictions on access to or from the subject property; or
 - (C) impose any other reasonable condition that would have the effect of improving traffic safety or lessening congestion on the streets.
- 5) The board shall not grant a special exception to reduce the number of off-street parking spaces required in a planned development district, or an ordinance granting or amending a specific use permit.

GENERAL FACTS:

- The Dallas Development Code requires the following off-street stacking space requirements for a financial institution with drive-in window:
 - 5 stacking spaces for 1 teller window or station. ("Teller window or station" is defined as a location where motor vehicles transact business with an employee of the financial institution by deal drawer or through the use of a pneumatic tube system or equivalent).
 - 10 stacking spaces for 2 teller windows or stations.

- 2 stacking spaces for each unmanned transaction station. (“Unmanned transaction station” is defined as a location where customers in motor vehicles transact business with a machine.)

The applicant proposes to provide 10 (or 83 percent) of the required 12 off-street stacking spaces in conjunction with the construction and maintenance of a financial institution with drive-in window use with 2 teller windows and 1 unmanned transaction station on the site.

- The applicant submitted information beyond what was submitted with the original application (see Attachment A).

BACKGROUND INFORMATION:

Zoning:

Site: RR (Regional Retail)
North: PD No. 17 (Planned Development)
South: PD No. 16 (Planned Development)
East: R-16(A), SUP No. 502 (Single family residential, Specific Use Permit for Private Recreation Club and Area)
West: RR (Regional Retail)

Land Use:

The subject site is developed as a retail strip center (The Preston Valley View Center). The areas to the north, south, and west are developed with retail uses; and the area to the east is developed with a private recreation center use.

Zoning/BDA History:

1. BDA 056-179, 13302 Preston Road (the subject site)

On August 15, 2006, the Board of Adjustment Panel A granted a request for a special exception to the off-street parking regulations of 29 spaces (or 8% of the required off-street parking). The case report stated that the request was made in conjunction with reallocating leasing areas/uses within an existing shopping center (The Preston Valley View Shopping Center). The board imposed the following condition: the special exception shall automatically and immediately terminate if and when the private recreation club, personal service use, furniture store, general merchandise or food store greater than 3,500 square feet, general merchandise or food store 3,500 square feet or less, restaurant with drive-in or drive-through service,

restaurant without drive-in or drive through service uses on the site are changed or discontinued.

Timeline:

February 25, 2011: The applicant submitted an “Application/Appeal to the Board of Adjustment” and related documents which have been included as part of this case report.

March 17, 2011: The Board of Adjustment Secretary assigned this case to Board of Adjustment Panel A.

March 17, 2011: The Board Administrator emailed the applicant the following information:

- an attachment that provided the public hearing date and panel that will consider the application; the April 4th deadline to submit additional evidence for staff to factor into their analysis; and the April 8th deadline to submit additional evidence to be incorporated into the Board’s docket materials;
- the criteria/standard that the board will use in their decision to approve or deny the request; and
- the Board of Adjustment Working Rules of Procedure pertaining to documentary evidence.

April 5, 2011: The Board of Adjustment staff review team meeting was held regarding this request and the others scheduled for April public hearings. Review team members in attendance included: the Sustainable Development and Construction Department Assistant Director, the Board Administrator, the Building Inspection Senior Plans Examiner/Development Code Specialist, the Sustainable Development and Construction Department Project Engineer, and the Assistant City Attorney to the Board.

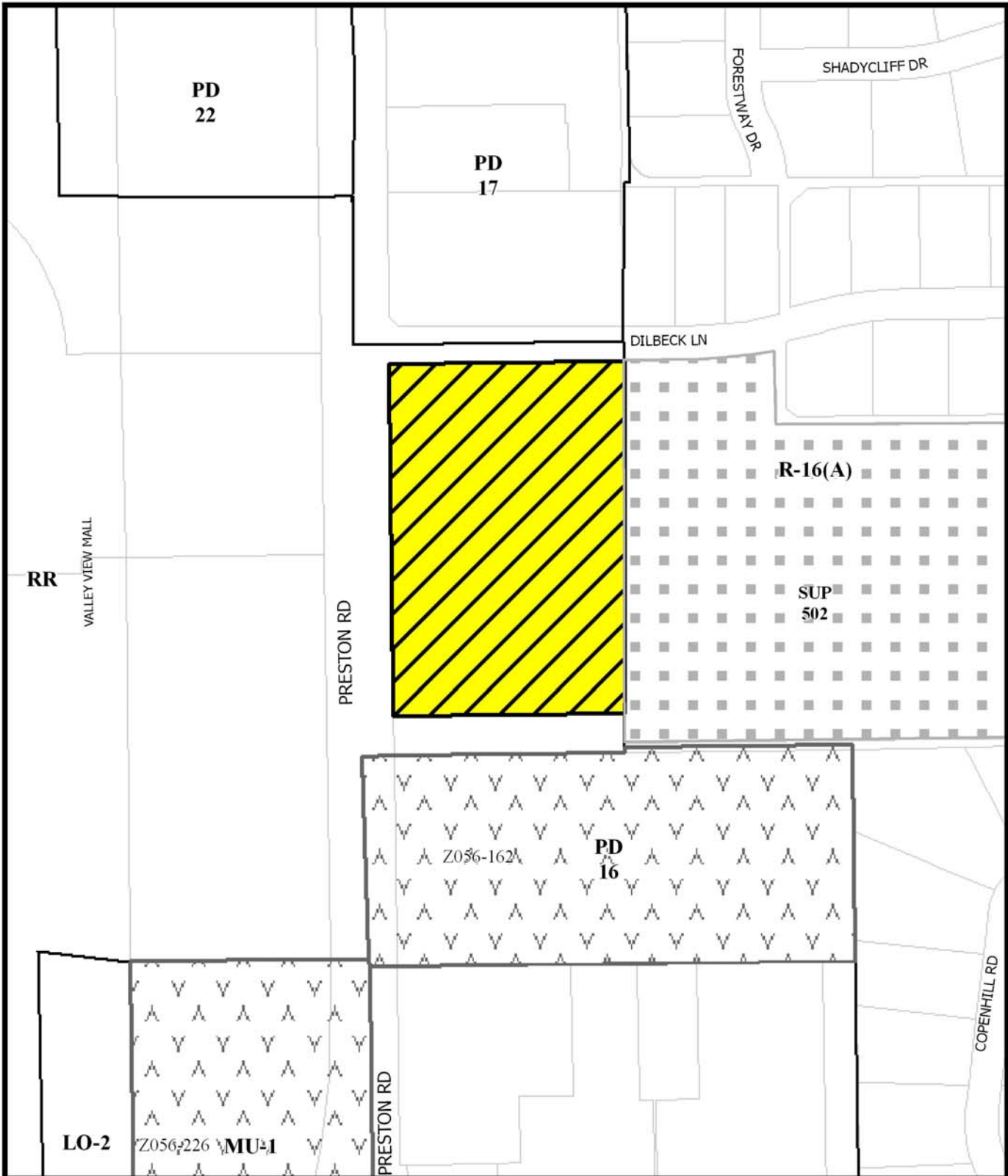
April 7, 2011: The Sustainable Development and Construction Department Project Engineer submitted a review comment sheet marked “Has no objections if certain conditions are met” with the following comments: “Recommend drive in front of bank to be one way southbound. Later agreed to let applicant provide signs to restrict turns into drive, at south drive/drive intersection, but mark one drive on ground with one set of arrows indicating two way drive in front of bank.”

April 8, 2011: The applicant submitted a revised site plan in response to the Sustainable Development and Construction Department Project Engineer’s April 7th comment sheet (see Attachment A).

April 11, 2011: The Sustainable Development and Construction Department Project Engineer states in an email that he is in support of the request with the condition imposed that the applicant complies with the revised submitted site plan.

STAFF ANALYSIS:

- This request focuses on constructing and maintaining an approximately 3,800 square foot financial institution with drive-in window use (Chase Bank), and providing 10 (or 83 percent) of the 12 code required off-street stacking spaces in conjunction with the drive-in window use having 2 teller windows and 1 unmanned transaction station.
- The Sustainable Development Department Project Engineer supports the request provided that the board impose a condition that the applicant complies with the revised submitted site plan.
- The applicant has the burden of proof in establishing the following:
 - The stacking space demand generated by the proposed use on the site does not warrant the number of off-street stacking spaces required, and
 - The special exception of 2 spaces (or a 17 percent reduction of the required number of off-street stacking spaces) would not create a traffic hazard or increase traffic congestion on adjacent and nearby streets.
- If the Board were to grant this request, subject to the conditions that: 1) the special exception of 2 off-street stacking spaces shall automatically and immediately terminate if and when the financial institution with drive-in window use is changed or discontinued; and 2) that the applicant comply with the submitted revised site plan, the applicant would be allowed to develop/maintain the site with this specific use with conditions/features as shown on this plan, and provide only 10 of the 12 code required off-street stacking spaces.



1:2,400

ZONING MAP

Map no: D-7, C-7

Case no: BDA101-036

DATE: April 01, 2011



1:2,400

AERIAL MAP

Map no: D-7, C-7

Case no: BDA101-036

DATE: April 01, 2011



City of Dallas

APPLICATION/APEAL TO THE BOARD OF ADJUSTMENT

Case No.: BDA 101-036

Data Relative to Subject Property:

Date: 2-25-11

Location address: 13330 Preston Road Zoning District: RR

Lot No.: 1 Block No.: 7438 Acreage: 4-4.95 Census Tract: ~~03615~~ 136.08

Street Frontage (in Feet): 1) 600.17' 2) 360' 3) _____ 4) _____ 5) _____ NE 3N

To the Honorable Board of Adjustment :

Owner of Property/or Principal: Preston Valley View Ltd.

Applicant: TOMMY MANN, WINSTEAD PC Telephone: (214) 745-5724

Mailing Address: 1201 Elm St, Suite 5400 Dallas, TX Zip Code: 75270

Represented by: _____ Telephone: _____

Mailing Address: _____ Zip Code: _____

Affirm that a request has been made for a Variance __, or Special Exception 1, of required stacking for a financial institution with drive through window.
A reduction of two spaces is being requested.

Application is now made to the Honorable Board of Adjustment, in accordance with the provisions of the Dallas Development Code, to grant the described request for the following reason:
As shown in the enclosed site plan and analysis, the request satisfies the on-off-street stacking special exception criteria in SEC. 51A - 4.304(c).

Note to Applicant: If the relief requested in this application is granted by the Board of Adjustment, said permit must be applied for within 180 days of the date of the final action of the Board, unless the Board specifically grants a longer period.

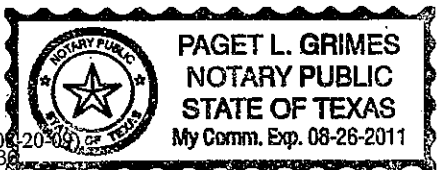
Respectfully submitted: TOMMY MANN [Signature]
Applicant's name printed Applicant's signature

Affidavit

Before me the undersigned on this day personally appeared TOMMY MANN who on (his/her) oath certifies that the above statements are true and correct to his/her best knowledge and that he/she is the owner/or principal/or authorized representative of the subject property.

[Signature]
Affiant (Applicant's signature)

Subscribed and sworn to before me this 24th day of February, 2011



[Signature]
Notary Public in and for Dallas County, Texas

MEMORANDUM OF
ACTION TAKEN BY THE
BOARD OF ADJUSTMENT

Date of Hearing _____

Appeal was--Granted OR Denied

Remarks _____

Chairman

Building Official's Report

I hereby certify that Tommy Mann

did submit a request for a special exception to the stacking regulations

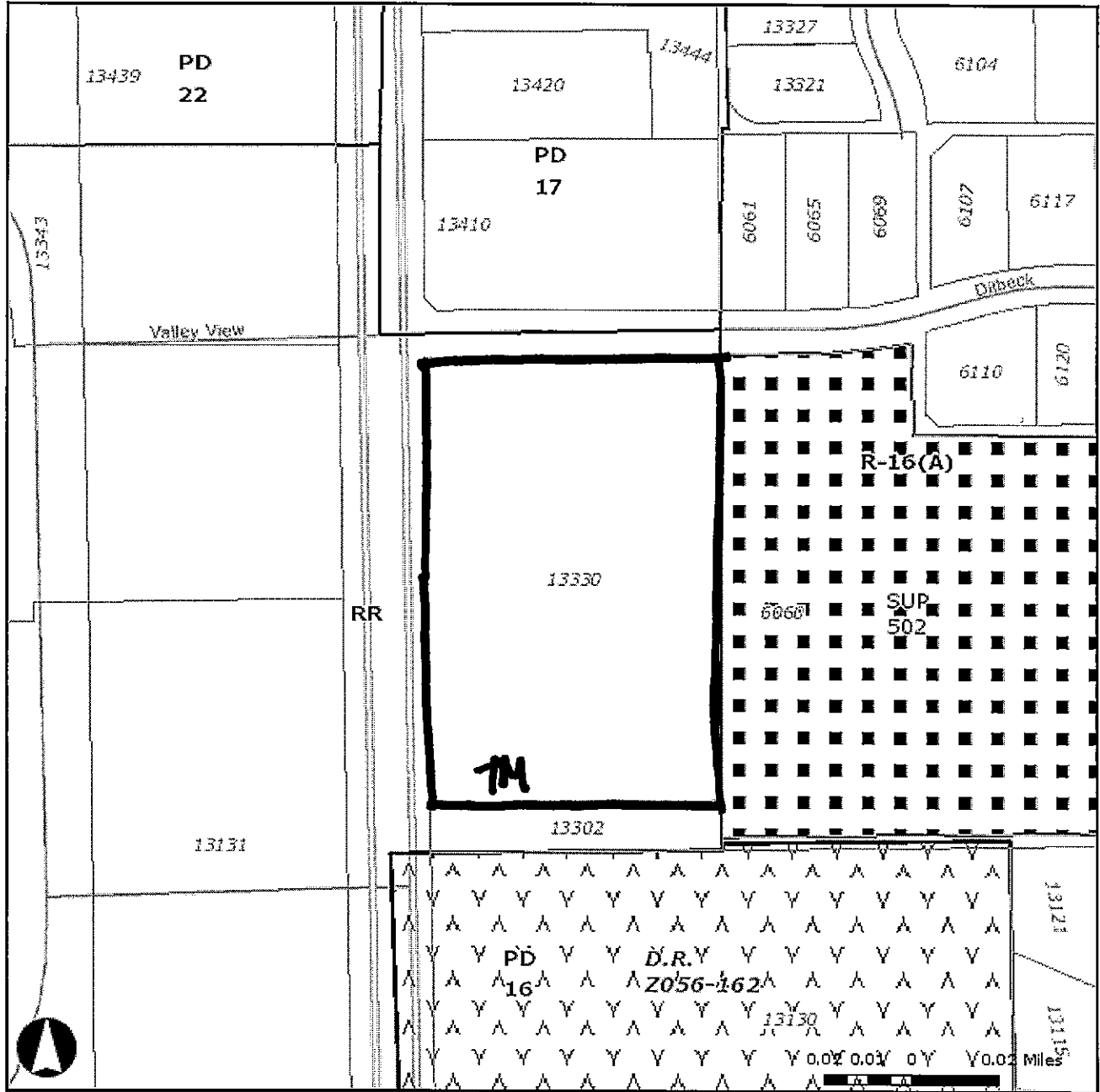
at 13330 Preston Road

BDA101-036. Application of Tommy Mann for a special exception to the stacking regulations at 13330 Preston Road. This property is more fully described as Lot 1 in city block 7438 and is zoned RR, which requires stacking to be provided. The applicant proposes to construct a financial institution with drive through window use and provide 10 of the required 12 stacking spaces, which will require a 2 space special exception (16.7% reduction) to the stacking regulation.

Sincerely,

Batsheba Antebi
Batsheba Antebi, Building Official

City of Dallas Zoning



City Boundaries

- County
- Certified Parcels
- DISD Sites
- Council Districts
- Waterways
- Parks

Dry Overlay

- D
- D-1
- Historic Overlay
- Historic Subdistricts
- NSO Overlay
- NSO Subdistricts
- MD Overlay

Base Zoning

- Floodplain
- 100 Flood Zone
- Mill's Creek
- Peak's Branch
- X PROTECTED BY LEVEE
- Pedestrian Overlay
- CP
- SP
- Environmental Corridors

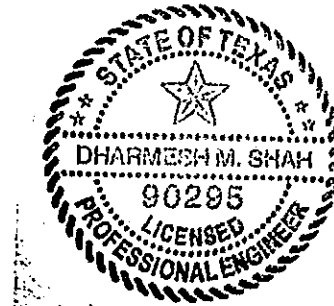


3030 LBJ FREEWAY
SUITE 1660
DALLAS, TEXAS 75234
972/248-3006 FAX 972/248-3855
TOLL FREE 888/298-3006

LEE ENGINEERING

February 24, 2011

Mr. Scott L Maynor, P.E
Cobb, Fendley & Associates, Inc.
6801 Gaylord Parkway, Suite 302
Frisco, TX 75034



2-24-2011

Re: *Traffic Analysis for Development Impact Review – Chase Bank, Preston Road at Dilbeck Lane*

Dear Mr. Maynor:

Lee Engineering has completed the traffic analysis for the proposed Chase Bank planned to replace the existing Casual Male XL retail store located in the southeast corner of the intersection of Preston Road and Dilbeck Lane in Dallas, Texas. The proposed 3,843 square foot bank will include three (3) drive-thru lanes and is planned to open in 2011. A site plan of the proposed development is provided in **Figure 1**.

The proposed bank will be provided access via one (2) existing right in-right out driveways on Preston Road, and two existing full access driveways on Dilbeck Lane. These driveways are shared with the strip retail center located in the southeast quadrant of the intersection of Preston Road and Dilbeck Lane. The existing intersection lane configurations are shown in **Figure 2**.

Existing and Background Traffic Volumes

24-hour bidirectional machine counts were collected in the vicinity of the proposed development on Tuesday, December 7, 2010 on two locations on Preston Road (north and south of Dilbeck Lane) and one location each on Dilbeck Lane and valley View Center. Additionally, existing weekday AM and PM peak hours were collected at the intersections of Preston Road with the existing site driveways, and the driveway immediately to the north of Dilbeck Lane. Peak period turning movement counts were also collected on Dilbeck Lane at the intersections with the two (2) site driveways. These volumes are shown in **Figure 3**. Adjacent to the site, Preston Road is a six-lane divided roadway with a posted speed limit of 35 miles per hour (mph).

To estimate the growth in background traffic volumes, historical traffic count data for Preston Road was obtained from TxDOT traffic counts maps. The historical traffic volumes on Preston Road have largely remained unchanged over the past several years. However, to present a conservative analysis, background (non-site) traffic volumes at build-out (2011) were estimated by growing the traffic volumes at annual growth rate of one (1) percent and are shown in **Figure 4**.

Proposed Development

The number of trips generated by the development is a function of the type and quantity of the land use of the development. The number of vehicle trips generated by the proposed development were estimated based on the trip generation rates provided in the publication entitled *Trip Generation, Eighth Edition*, by Institute of Transportation Engineers (ITE). Estimates of the number of trips generated by the proposed development were made for the weekday AM and PM peak hours, as well as on a daily basis. The trip generation rates and equations for this development and the resulting number of trips generated by this development are shown in **Tables 1 and 2**.

Table 1. Trip Generation Rates

LAND USE	Land Use	Drive-in Bank
	ITE Land Use Code	912
RATES ¹	Average Weekday	T = 148.15 (X)
	AM Peak Hour	T = 12.35 (X)
	PM Peak Hour	T = 25.82 (X)
DIRECTIONAL SPLIT (% in / % out)	Average Weekday	50% / 50%
	AM Peak Hour	56% / 44%
	PM Peak Hour	50% / 50%

¹T = Trip Ends; X = 1,000 Square Feet;

Table 2. Estimated Trip Generation for Proposed Chase Bank

	Average Weekday			AM Peak Hour			PM Peak Hour		
	Total	In	Out	Total	In	Out	Total	In	Out
Drive-in Bank	570	285	285	47	27	21	100	50	50

The distribution of site generated traffic on the area roadways was determined based on existing traffic patterns in the vicinity of the proposed development. The assumed directional distribution is presented in **Figure 5**. The estimated AM and PM peak hour site generated traffic volumes for the proposed development are shown in **Figure 3**. These trips were then added to the 2011 background traffic volumes to obtain total traffic volumes at site build-out (2011) and are presented in **Figure 6** and **Figure 7**, respectively.

Capacity Analyses

Background Conditions (2011)

To analyze the impact of the background growth in traffic, capacity analysis for the intersection of Preston Road and Dilbeck Lane/Valley View Center was performed under 2011 background (non-site) traffic conditions using the traffic volumes shown in **Figure 4**. **Table 3** presents the results of this analysis

Table 3. Capacity Analysis Results – Background Conditions

Preston Road at Dilbeck Lane/Valley View Center					
	Intersection	EB	WB	NB	SB
AM Peak	14.7 (B)	36.0 (D)	44.4 (D) ¹	12.6 (B)	15.4 (B)
PM Peak	36.3 (D)	46.5 (D)	82.1 (F)	46.0 (D)	20.3 (C)

¹ Delay in seconds/vehicle (Level of Service)

As shown in Table 3, the intersection of Preston Road and Dilbeck Lane/Valley View Center is expected to operate at acceptable levels of service during the AM and PM peak hours. However, the westbound approach to this intersection is expected to operate at poor levels of service during the PM peak hour albeit at a very reasonable volume to capacity ratio of 0.79.

Total Conditions (2011)

Capacity analysis was also performed under 2011 total traffic conditions to analyze the impact of traffic volumes generated by the proposed development. Traffic volumes shown in Figure 7 were used in this analysis, the results of which are presented in Table 4.

Table 4. Capacity Analysis Results – Total Conditions

Preston Road at Dilbeck Lane/Valley View Center					
	Intersection	EB	WB	NB	SB
AM Peak	16.6 (B)	38.3 (D)	48.9 (D) ¹	13.9 (B)	17.3 (B)
PM Peak	46.8 (D)	47.7 (D)	123.1 (F)	62.0 (E)	21.4 (C)

¹ Delay in seconds/vehicle (Level of Service)

As shown in Table 4, the intersection of Preston Road and Dilbeck Lane/Valley View Center is expected to continue to operate at acceptable levels of service during the AM and PM peak hours. However, the westbound and northbound approaches to the subject intersection are expected to operate at poor levels of service during the PM peak hour.

Right Turn Lane Analysis

As part of this development impact review, analysis was performed to determine if a right turn deceleration lane would be required at any of the site driveways to the Chase Bank. Based on guidelines provided in TxDOT's *Access Management Manual*, for roadways with speed limit of 45 mph or less, right turn deceleration lanes are usually considered for right turn volumes greater than 60 vehicles per hour. Right turn volumes at none of the site driveways are expected to exceed this threshold with the maximum right turn volumes expected to be approximately 35 vehicles during the PM peak hour. Therefore, a right turn deceleration lane is not required at any of the site driveways.

Stacking Analysis

As has been mentioned earlier, the proposed Chase Bank will include three (3) drive-thru lanes (two teller windows and one ATM lane). The stacking space being provided at this facility was analyzed

as part of this study to ensure that proper storage is available to accommodate the queue that is expected to be generated at the two teller windows.

It can be assumed that the vehicles arriving at the Chase Bank follow a 'random distribution'. Using the arrival rate and the assumed transaction time per customer, the required queue length can be calculated. Based on the trip generation for the proposed bank, the arrival rate at the drive-thru window during the PM peak hour is 40 vehicles (utilizing the trip generations for a 3,843 square foot drive-thru bank and assuming approximately 80 percent of the customers utilize drive-thru lanes). Further, it was assumed that the ATM lane would account for 25 percent of the drive-thru traffic. Therefore, the average arrival rate at the teller windows would be 30 vehicles per hour (i.e. one vehicle every two minutes).

Based on our previous field observations at bank drive-thru lanes, transaction time of 4 minutes per customer was assumed. Additionally, assuming a peak arrival rate of one vehicle per minute (two times the average rate of one vehicle every two minutes) during the peak 12-minute period, followed by the average one vehicle every two (2) vehicles during the next twelve (12) minutes, and then one vehicle every three (3) minutes for the rest of the hour (total 30 vehicles during the PM peak hour), the maximum queue at a drive-thru lane is not expected to exceed three (3) vehicles. The queuing analysis results for the peak 30 minute period are shown in **Table 5** that follows.

Table 5. Peak 30 Minutes Queuing Evaluation

Time	Vehicles				Maximum Queue (Vehicles)
	Lane 1		Lane 2		
	At Teller	In Queue	At Teller	In Queue	
5:00 - 5:01	V1 ¹	-	-	-	0
5:01 - 5:02	V1	-	V2	-	0
5:02 - 5:03	V1	V3	V2	-	1
5:03 - 5:04	V1	V3	V2	V4	1
5:04 - 5:05	V3	V5	V2	V4	1
5:05 - 5:06	V3	V5	V4	V6	1
5:06 - 5:07	V3	V5, V7	V4	V6	2
5:07 - 5:08	V3	V5, V7	V4	V6, V8	2
5:08 - 5:09	V5	V7, V9	V4	V6, V8	2
5:09 - 5:10	V5	V7, V9	V6	V8, V10	2
5:10 - 5:11	V5	V7, V9, V11	V6	V8, V10	3
5:11 - 5:12	V5	V7, V9, V11	V6	V8, V10, V12	3
5:12 - 5:13	V7	V9, V11	V6	V8, V10, V12	3
5:13 - 5:14	V7	V9, V11, V13	V8	V10, V12	3
5:14 - 5:15	V7	V9, V11, V13	V8	V10, V12	3
5:15 - 5:16	V7	V9, V11, V13	V8	V10, V12, V14	3
5:16 - 5:17	V9	V11, V13	V8	V10, V12, V14	3
5:17 - 5:18	V9	V11, V13, V15	V10	V12, V14	3
5:18 - 5:19	V9	V11, V13, V15	V10	V12, V14	3
5:19 - 5:20	V9	V11, V13, V15	V10	V12, V14, V16	3
5:20 - 5:21	V11	V13, V15	V10	V12, V14, V16	3
5:21 - 5:22	V11	V13, V15, V17	V12	V14, V16	3
5:22 - 5:23	V11	V13, V15, V17	V12	V14, V16	3
5:23 - 5:24	V11	V13, V15, V17	V12	V14, V16, V18	3
5:24 - 5:25	V13	V15, V17	V12	V14, V16, V18	3
5:25 - 5:26	V13	V15, V17	V14	V16, V18	2
5:26 - 5:27	V13	V15, V17, V19	V14	V16, V18	3
5:27 - 5:28	V13	V15, V17, V19	V14	V16, V18	3
5:28 - 5:29	V15	V17, V19	V14	V16, V18	2
5:29 - 5:30	V15	V17, V19	V16	V18, V20	2

1 - V1: Vehicle 1

Conclusions and Recommendations

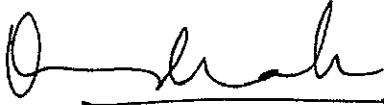
- The proposed development is expected to generate approximately 570 trips on a daily basis with 47 trips during the AM peak hour and 100 trips during the PM peak hour.
- With the exception of the westbound approach, the intersection of Preston Road and Dilbeck Lane/Valley View Center is expected to operate at acceptable levels of service during the AM and PM peak hours under 2011 background traffic conditions. However, this approach is expected to operate under capacity with a v/c ratio of 0.79.
- The intersection of Preston Road and Dilbeck Lane/Valley View Lane is expected to operate at acceptable levels of service under 2011 total traffic conditions similar to the traffic operations

under 2010 background traffic conditions. However, the westbound and the northbound approach are expected to operate at a poor level of service.

- Based on the auxiliary lane analysis, right turn decelerations are not recommended at any of the site driveways.
- Adequate stacking space is proposed for the drive-thru lanes planned as part of the Chase Bank.

If you have any questions regarding this study, please contact me at (972) 248-3006. We appreciate the opportunity to provide these services.

Sincerely,



Dharmesh M. Shah, P.E., PTOE.

Vice President

Lee Engineering

Firm Registration Number - F-000450

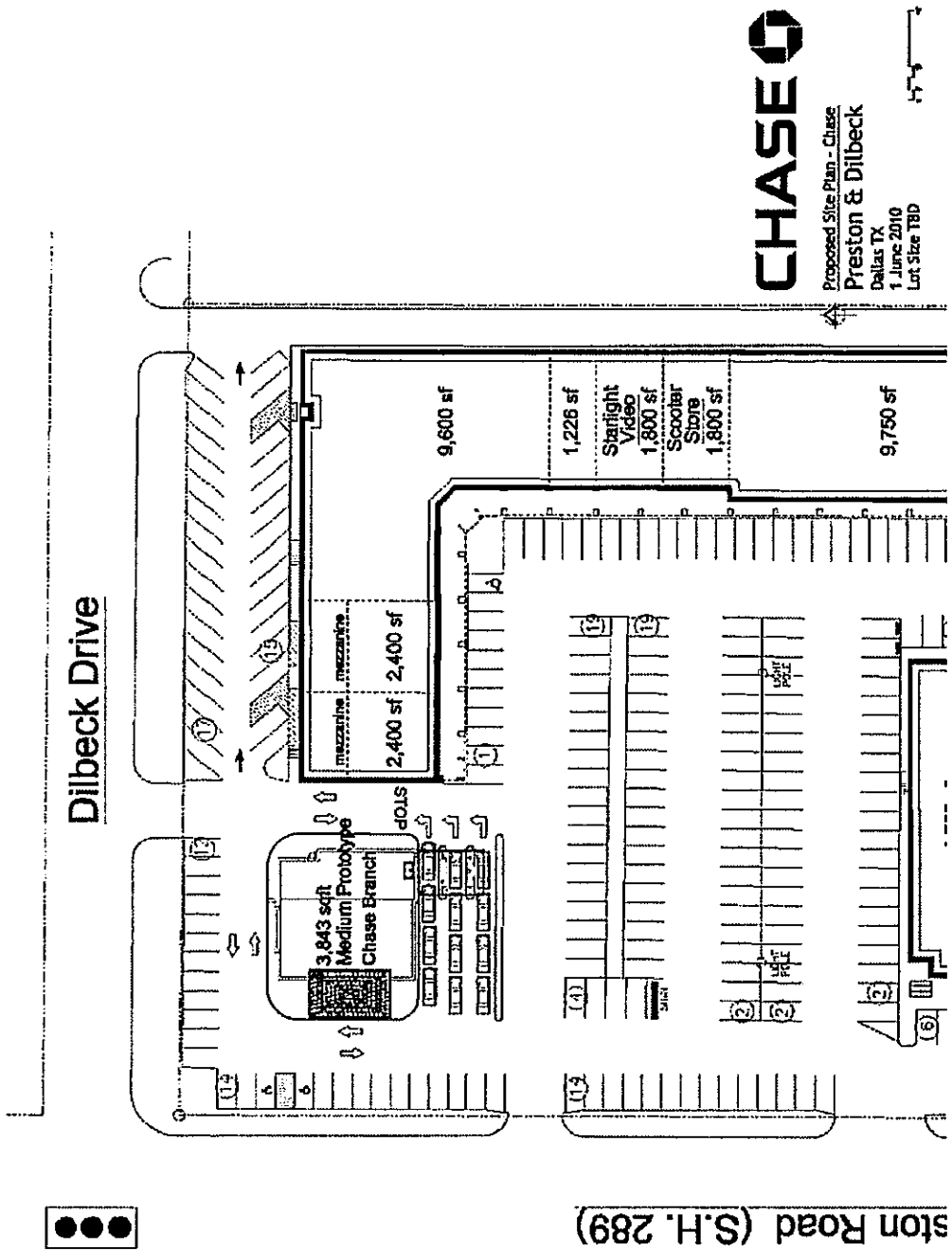
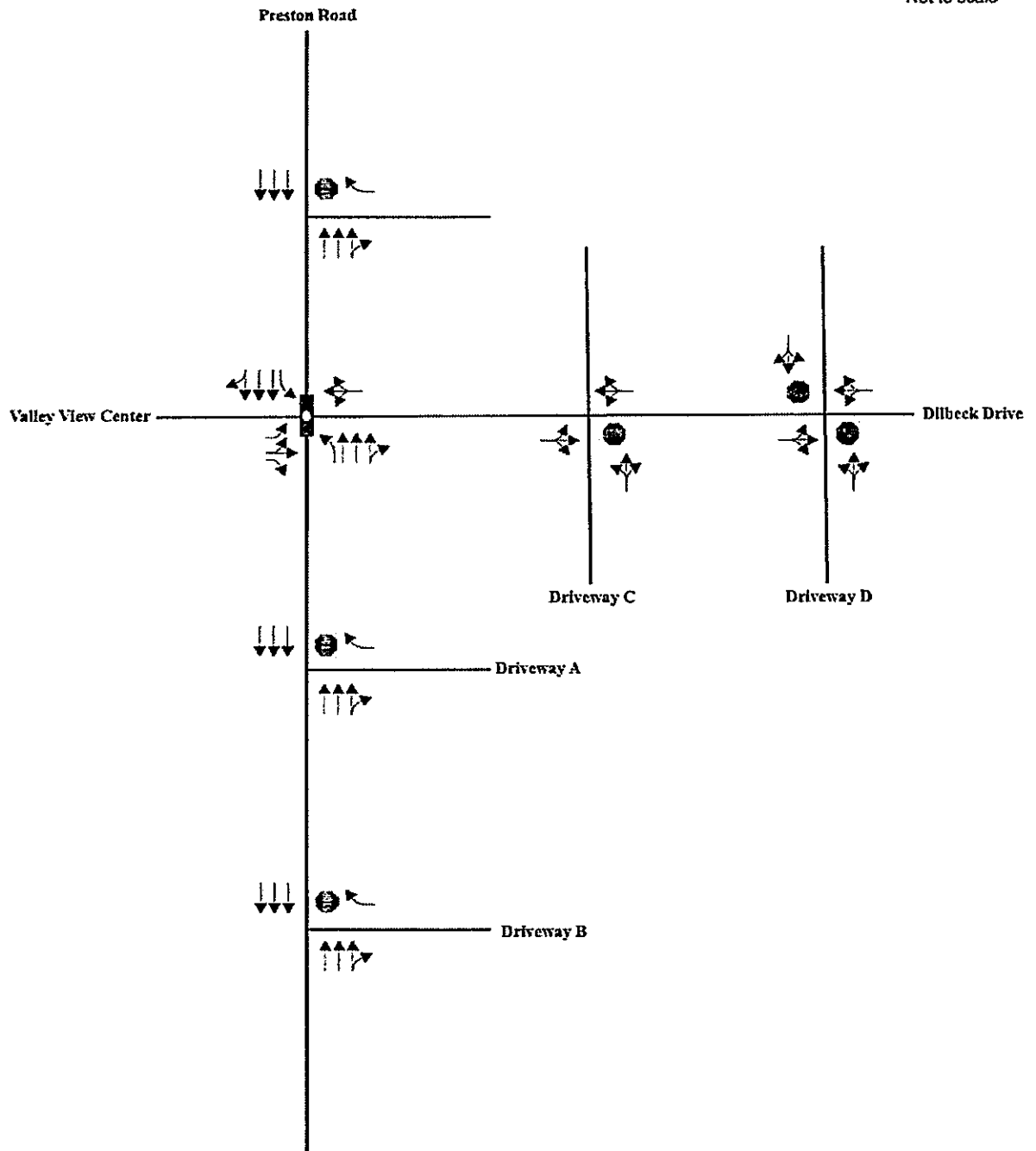


Figure 1

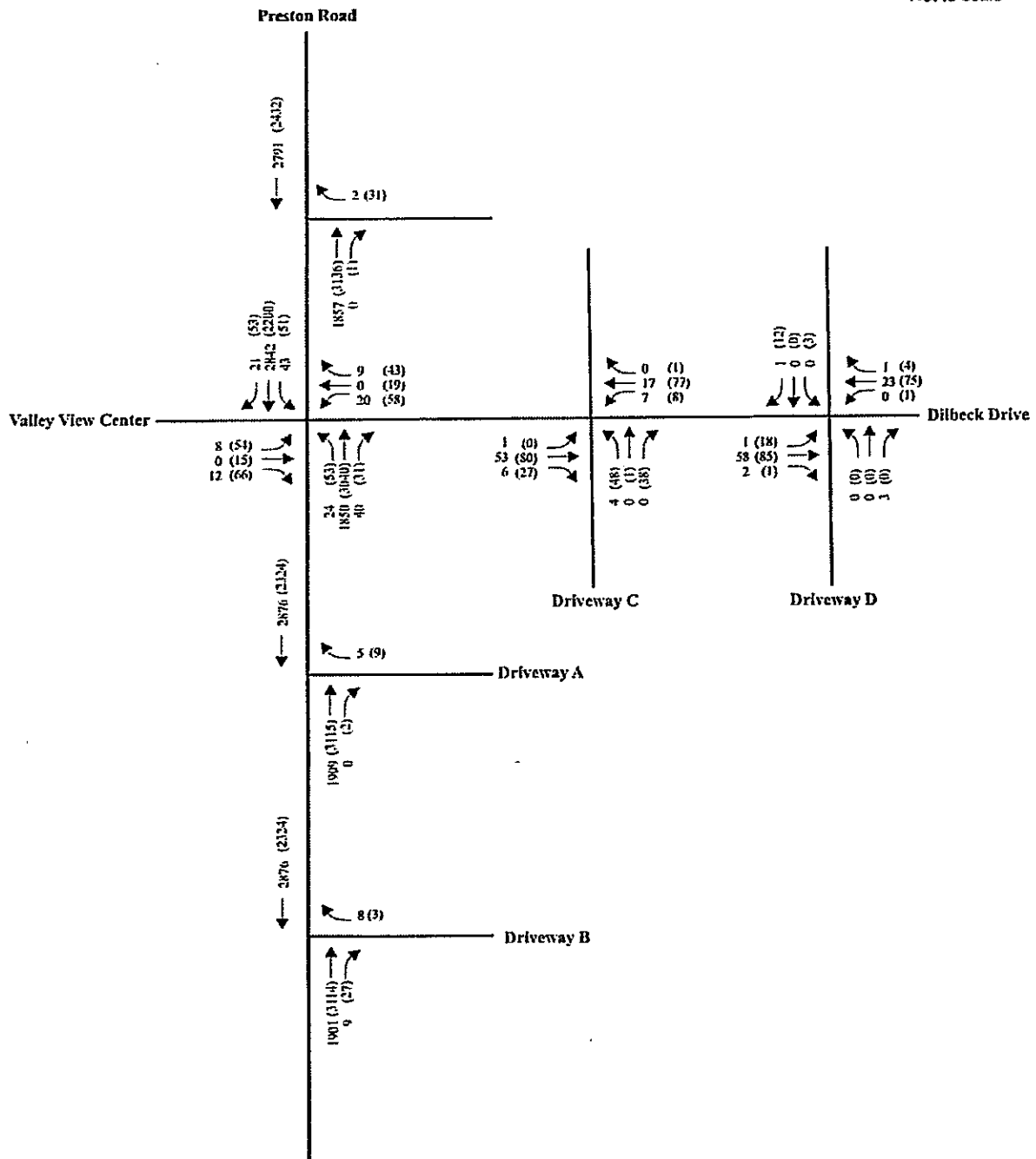
Chase Bank - Preston & Dilbeck
 Site Plan





Existing Intersection Lane Configurations

Figure 2

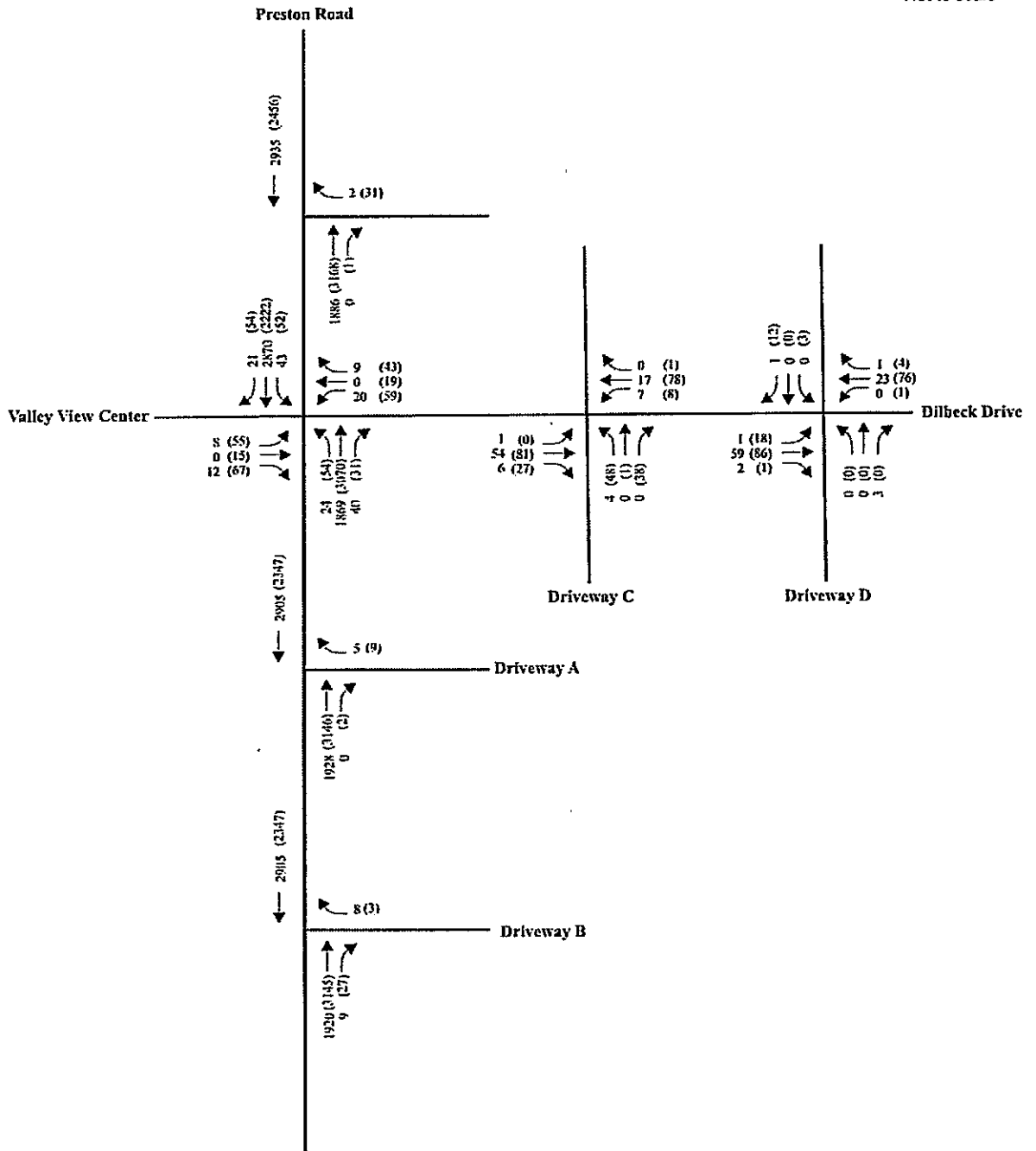


LEGEND: XX = AM Peak Hour (XX) = PM Peak Hour



Existing Traffic Volumes (2010)

Figure 3



LEGEND: XX = AM Peak Hour (XX) = PM Peak Hour

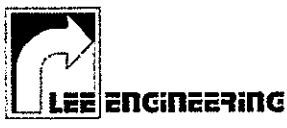
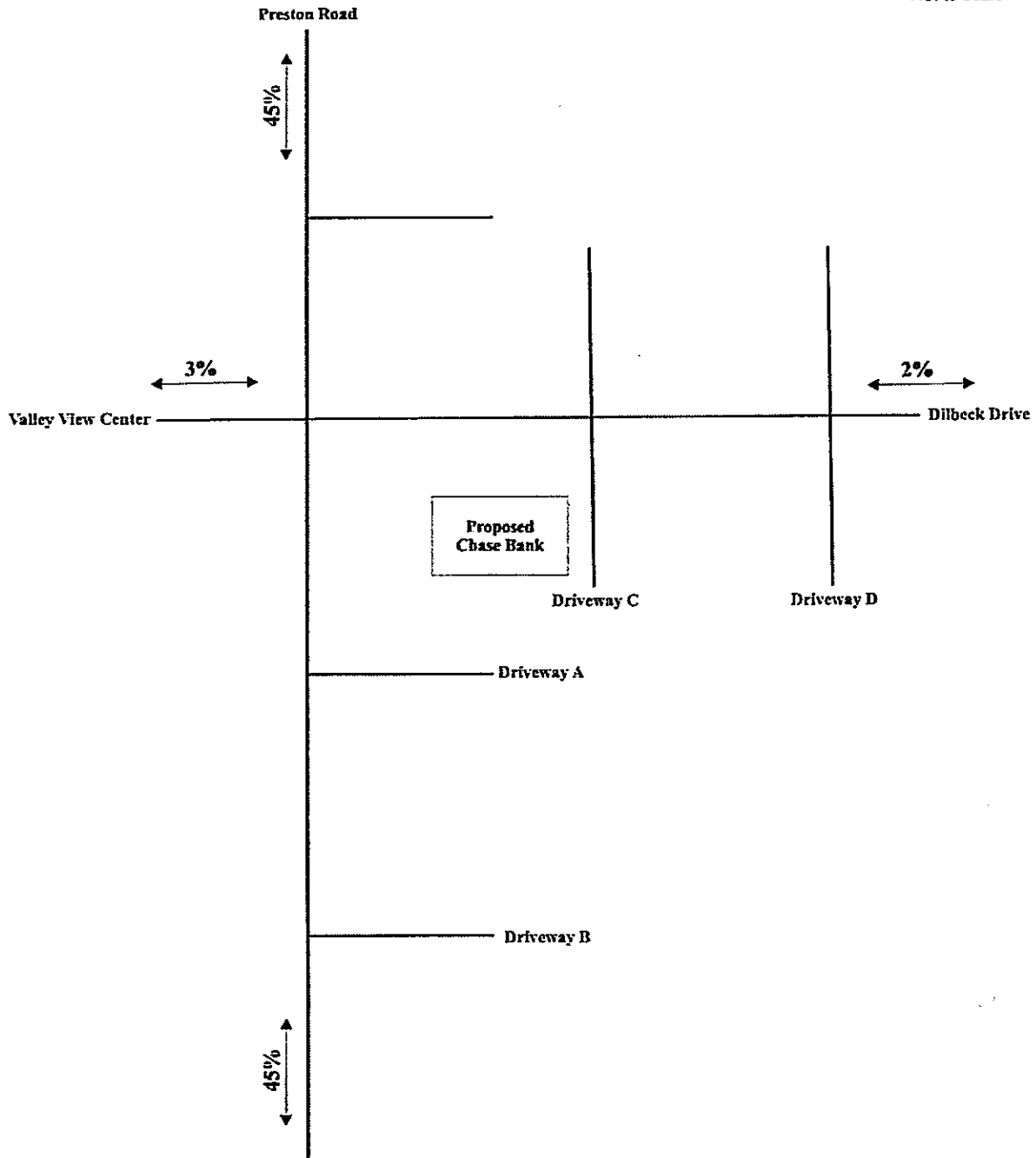


Background Traffic Volumes (2011)

Figure 4

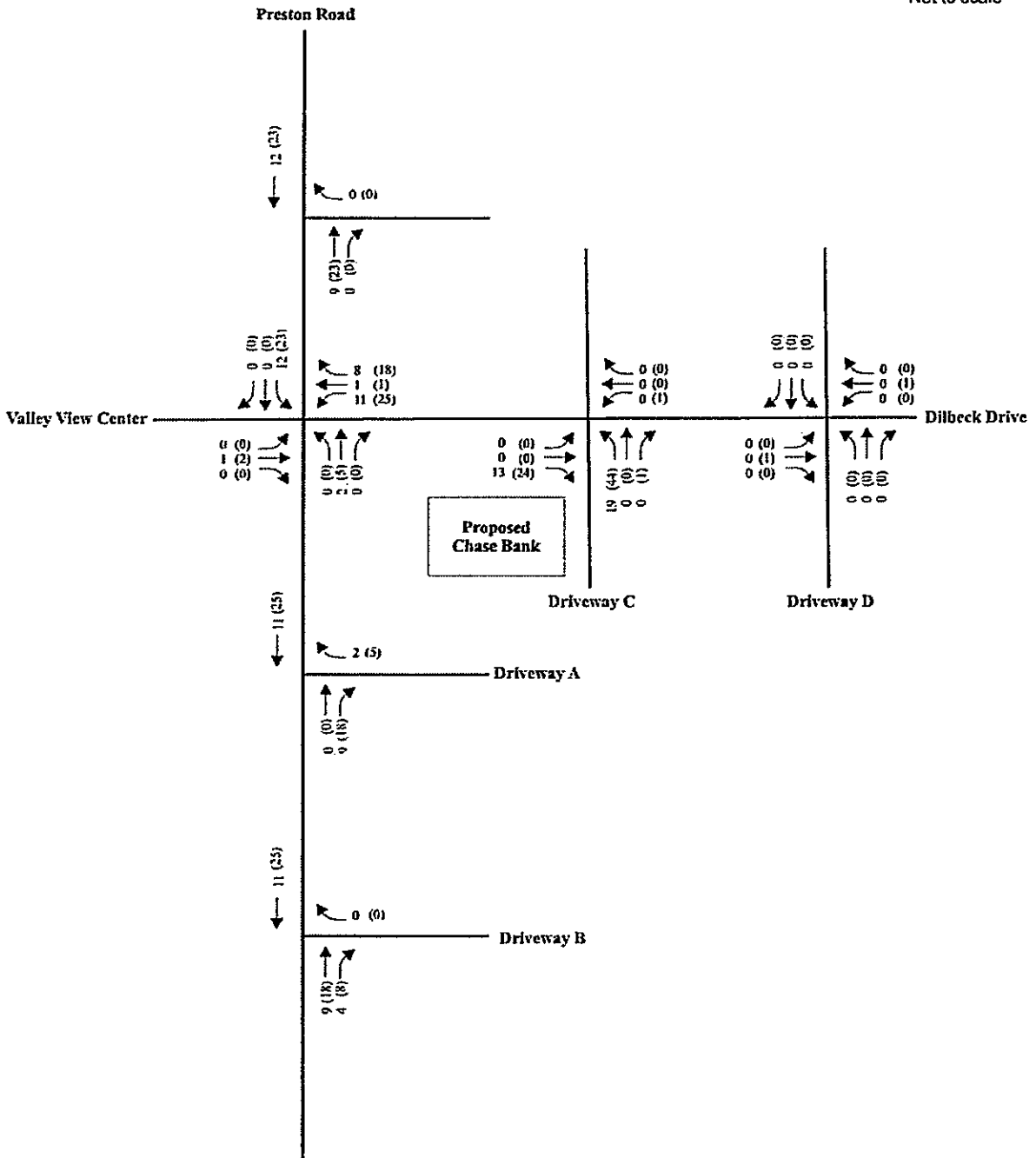


Not to scale



Assumed Directional Distribution

Figure 5

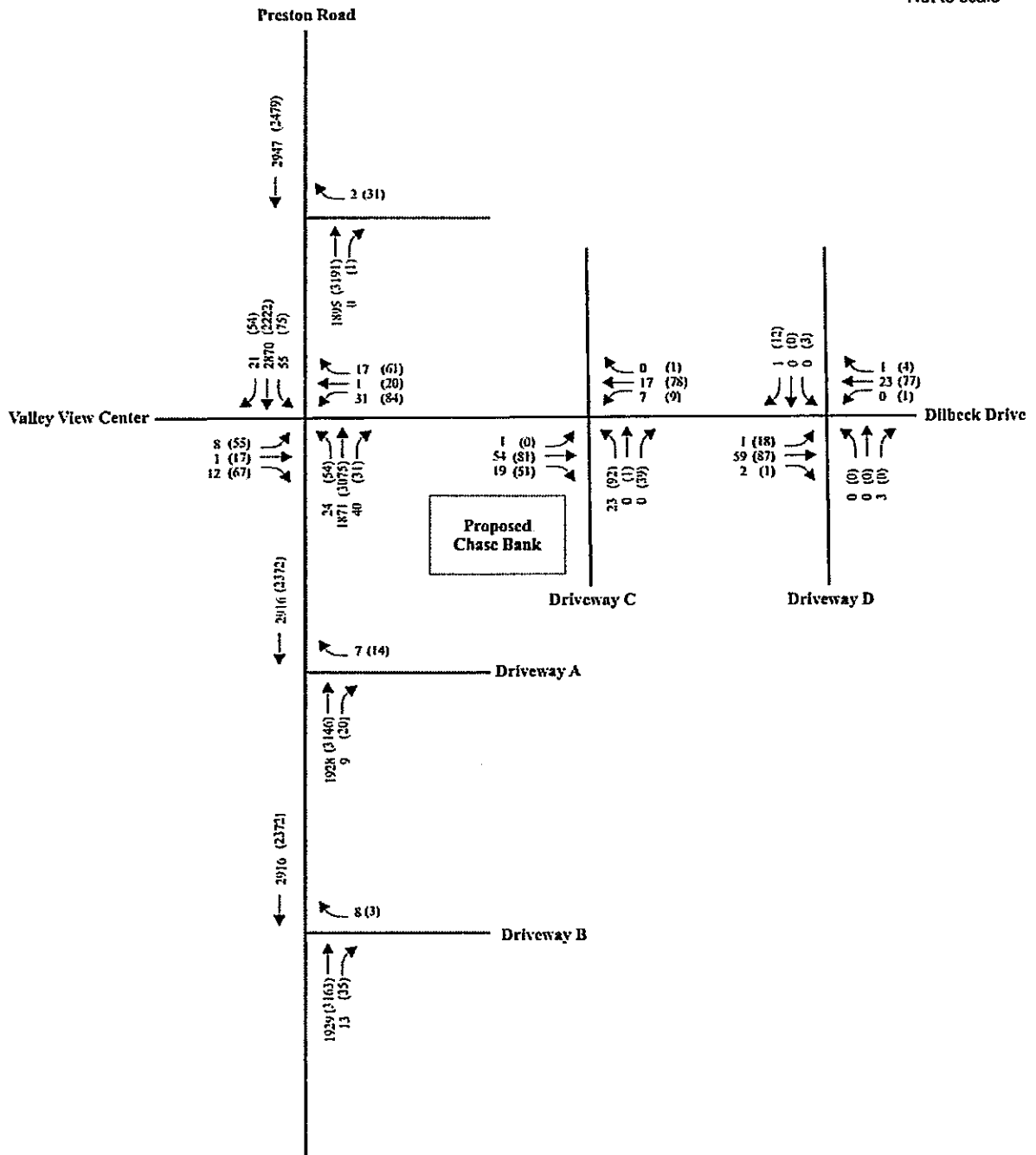


LEGEND: XX = AM Peak Hour (XX) = PM Peak Hour



Site Generated Traffic Volumes

Figure 6

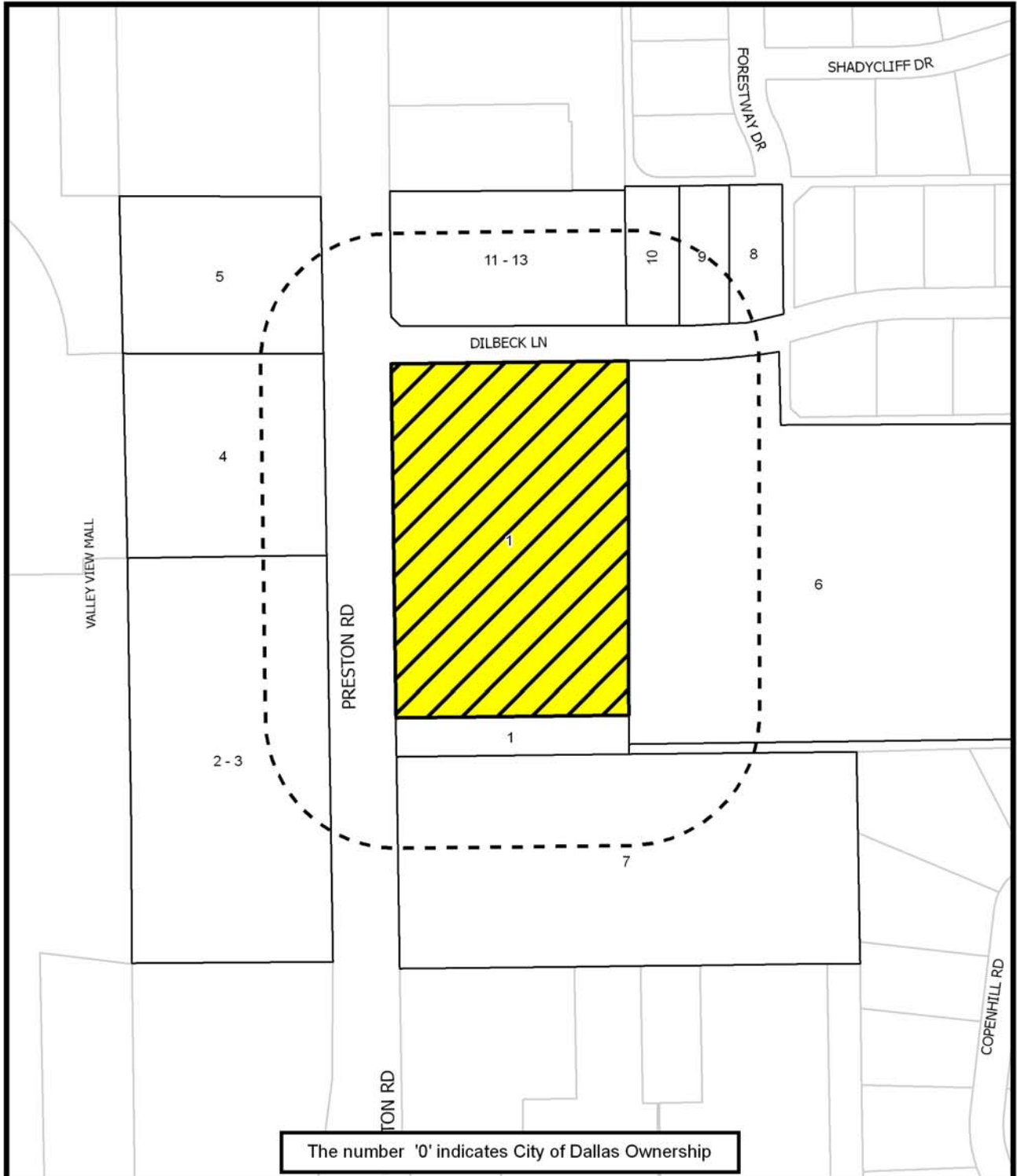



LEGEND: XX = AM Peak Hour (XX) = PM Peak Hour



Total Traffic Volumes (2011)

Figure 7




 1:2,400

NOTIFICATION

200' AREA OF NOTIFICATION
13 NUMBER OF PROPERTY OWNERS NOTIFIED

Map no: D-7, C-7
 Case no: BDA101-036

DATE: April 01, 2011

Notification List of Property Owners

BDA101-036

13 Property Owners Notified

Label #	Address	Owner
1	13330 PRESTON	CIN PRESTON VALLEY VIEW
2	13131 PRESTON	SEARS ROEBUCK & CO D/768 TAX B2-107A
3	13149 PRESTON	STERLING JEWELER INC C/O TAX DEPT
4	13131 PRESTON	MACERICH VALLEY VIEW LTD C/O E PROPERTY TX DEPT108
5	13131 PRESTON	DILLARD DEPT STORES INC % PPTY TAX DEPT
6	6060 DILBECK	AGRITELLEY GLEN W
7	13130 PRESTON	REALTY INCOME TEXAS PROPERTIES LP
8	6069 DILBECK	MASAKI MARIA
9	6065 DILBECK	STAFFIN JEFF & DOLORES
10	6061 DILBECK	MURAD RALPH T & JULIA A TR
11	13410 PRESTON	ARNOLD SQUARE INVESTMENTS LLC
12	13410 PRESTON	ARNOLD SQUARE INVESTMENTS LLC
13	13410 PRESTON	CAPITAL ONE N A