



**TENTATIVE A g e n d a**  
**President and Board of Trustees**  
**Monday, January 9, 2012**  
**Village Hall**  
**123 Madison Street**

**Special Meeting at 7:30p.m. in the Council Chambers**

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- I. Call to Order
  - II. Roll Call
  - III. Agenda Approval
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**Instructions for Agenda Public Comment**  
(3 minutes per person; 3 items per person maximum)

Comments are 3 minutes per person per agenda item, with a maximum of 3 agenda items to which you can speak. In addition, the Village Board permits a maximum of three persons to speak to each side of any one topic that is scheduled for or has been the subject of a public hearing by a designated hearing body. These items are noted with a (\*).

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**IV. Regular Agenda**

**A. Consideration of a Motion to Accept the Plan Commission's Recommendations and Findings of Fact as Proposed for 938-954 Lake Street and 170 N. Forest Avenue to Deny the Applicant's Request for an Amendment to Planned Ordinance 2010-0-014 and Direct Staff to Prepare the Necessary Documents**

**Overview:** This item was presented to the Board on December 5<sup>th</sup> which included a presentation by the Plan Commission Chair, the developer and staff. Public Comments were also taken.

- 1. Brief Overview of Project & Staff Recommendations
- 2. Public Comments (\*)
- 3. Board Discussion
- 4. Board Direction

*(\*) The Village Board permits a maximum of three persons to speak to each side of any one topic that is scheduled for or has been the subject of a public hearing by a designated hearing body.*

V. **Consent**

B. **Resolution Declaring A Distribution of \$4,369,113.93 in Tax Increment Revenues from the Downtown Oak Park TIF District to Taxing Districts Based on Upon 2010 Rates**

**Overview:** This is the first surplus distribution required under the 2011 Agreement. Identical to distributions made under the 2003 IGA and 1985 Settlement Agreement of which the 2011 Agreement has replaced, staff recommends to the Village Board an amount to be declared as surplus. This amount is determined by the formulas as recently agreed to by the D97, S200 and VOP Boards. Once approved by the Village Board, a check will be issued by the Village and taken to the Cook County Treasurer's Office for distribution by the County.

VI. **Adjourn**

For more information regarding Village Board meetings and agendas, please contact the Village Manager's Office at 708.358.5770. If you require assistance to participate in any Village program or activity, contact the ADA Coordinator at 708.358.5430 or e-mail [adacoordinator@oak-park.us](mailto:adacoordinator@oak-park.us) at least 48 hours before the scheduled activity. Agendas and agenda materials are now available electronically on the village web site. Visit [www.oak-park.us](http://www.oak-park.us) mouse-over News, then click on Board Agendas and Minutes.

# VILLAGE OF OAK PARK

A.

## CITIZEN ADVISORY BOARD AND COMMISSION

### AGENDA ITEM COMMENTARY

**Item Title: Consideration of a Motion to Accept the Plan Commission's Recommendations and Findings of Fact as proposed 938 - 954 Lake Street and 170 N. Forest Avenue to Deny the Applicant's Request for and Amendment to Planned Development Ordinance 2010-0-014.**

Resolution or Ordinance No. \_\_\_\_\_

Date of Board Action: January 9, 2012

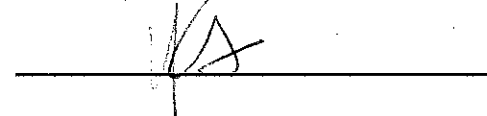
Submitted by: Linda M. Bolte, Chairperson  
Oak Park Plan Commission

Staff Member & Reviewer: Craig Failor, Village Planner

Department Director Name: \_\_\_\_\_



Village Manager's Office: \_\_\_\_\_



**Citizen Advisory Board or Commission Issue Processing (Dates of Related Commission Meetings):** On August 19, 2009, Sertus Capital Partners LLC, filed an application with the Village of Oak Park for a planned development on the parcel at the northeast corner of Lake Street and Forest Avenue. The President and Board of Trustees referred the application to the Plan Commission to hold the required public hearing on the application. After extensive public hearing on the matter, the Plan Commission recommended approval of the planned development special use on February 18, 2011. The Village Board of Trustees approved the planned development on March 15, 2010, via Ordinance Number 2010-0-014.

On July 18, 2011, the Applicant filed for an amended planned development, seeking to amend Ordinance No. 2010-0-014, to [remove] the 140-room hotel and 85-unit condominium components from the project and [replace] them with up to 270 residential rental units and [increase] the number of parking spaces from 510 to 588 spaces, and [modify] the exterior materials and use for the previously-granted planned development on the Subject Property. The President and Board of Trustees referred the amended application to the Plan Commission at its August 4, 2011, special Board meeting for the following limited purposes:

1. The change in use from hotel and residential condominiums to residential rental apartments which includes a density allowance to permit construction of up to 270 residential rental units;
2. A residential parking allowance reducing the otherwise required parking by 85 spaces; and
3. A change in exterior design and materials for the development.

On August 10, 2011, a legal notice was published in The Wednesday Journal. A notice was posted at the Subject Property and certified letters were also mailed by the

Applicant to taxpayers of record for property within 500 feet of the Subject Property, advising them of the proposal and the public hearing to be held.

The Plan Commission conducted a public hearing on the application commencing on August 25, 2011, and continuing to September 1, 2011, September 15, 2011, October 6, 2011, October 20, 2011, and November 3, 2011, at which times and place a quorum of the members of the Plan Commission was present. At their November 17, 2011 meeting they approved the Findings of Fact.

**Item Policy Commentary (Key Points, Current Issue, Bid Process, Recommendation):** The Plan Commission's vote of 4-4 is a recommendation to deny the Applicant's planned development amendment request as five (5) affirmative votes are necessary to forward a positive recommendation. The attached findings of fact detail the discussion which led to the vote. The attached minutes reflect the conversation about and reasons for the vote. However, the main issues were generally related to parking, traffic, and density associated with the proposed 270 dwelling units. The Commission was also concerned about the number of potential parking permits that might be allowed in the 300 space public garage, either by the tenants or guests of the building or others as it would take away from the reduced public supply. The Plan Commission wants to ensure that if there is a possibility the Village Board is inclined to approve the application, that the conditions mentioned in the Findings of Fact are incorporated into the ordinance for approval as well as any presentation from the applicant which identifies building materials and site design, including the landscape plan, site plan, elevations, floor plans, etc.

**Staff Commentary (If applicable or different than Commission):** The Staff believes that the project as proposed is appropriate for the following reasons: HOUSING/DENSITY; Based on the Tracy Cross & Associates Market Analysis and 2040 Oak Park population projections, the rental units proposed by Sertus Capital should be well received in the Village of Oak Park. Based on 2040 population projections, the Village of Oak Park does need additional rental housing at the levels proposed by Sertus Capital for the Lake and Forest Development. The Chicago Metropolitan Planning Council (CMAP) prepared information, as part of the Homes for a Changing Region Report for the Village of Oak Park, which showed a need for additional rental units for households earning more than \$50,000. The projected units at the rental levels proposed by Sertus Capital will partially fill this unmet need. The Village of Oak Park should have no issues absorbing the additional 270 rental units. The only concern would be increased competition from projects in the City of Chicago. Since the Lake & Forest project rents being proposed are \$231 per month under the market variance for newer City of Chicago rental projects, the Lake & Forest project should compare favorably. Additionally, the number of units and bedroom sizes proposed appears to fit the demand that would be generated for a transit oriented development. It is noteworthy that Whiteco Residential's rental ability during the current recession is extraordinary as they are 95% occupied.

The rental levels of the proposed development are also priced so as to not put undue competition on existing older rental units in the Village which may offer fewer amenities but are usually larger and priced lower. While we will not know exact vacancy rates until multi-family license renewals in mid-September, multi-family building owners and managers that we are currently working with are reporting fewer vacancies and lower turn over in existing units. Additionally, the Housing Center is reporting an increase in rentals in Oak Park compared to last year at the same time. Both of these factors indicate the return of a healthy

rental market. We would encourage the developer's management company to work with the Village's Housing Programs Division and the Oak Park Regional Housing Center to develop an affirmative marketing plan including strategies that would further the Village's commitment to integrated housing.

PARKING; The development requires on-site parking for, 40 studio bedroom units = 40 spaces, 122 one-bedroom units = 153 spaces, 108 two-bedroom units = 162 spaces and 18 spaces for 8,550 sq. ft. of retail space yielding a total base parking requirement of 373 spaces where as the development will contain 288 privately owned parking spaces, in addition to the 300 publicly owned parking spaces, thereby requiring an allowance of 85 parking spaces. The request averages out to be 1.07 parking spaces per unit; where the Zoning Ordinance requirement averages out to be 1.3 parking spaces per unit. In the past the Plan Commission and Village Board have supported a 1:1 ratio between dwelling units and parking spaces in the Greater Downtown Area. This is consistent (and in some cases in excess) with the regional standard set in transit rich districts. With the number of private parking spaces provided, there will be 18 extra spaces above the standard 1:1 ratio that could be used for guest parking, resident's extra cars, I-Go car sharing spaces, or they could be incorporated into the public mix to satisfy their commercial requirement.

In the parking and traffic report the consultant indicates that the proposed site is well situated with respect to the roadway system. They and staff believe that the new plan will not have a detrimental impact on current traffic conditions. Based on their information, there will be an increase in trips (+14) in and out of the development during the AM and PM peak hours compared to the previous traffic study. They also state that there will be a large reduction in trips (-52) on the weekend (Saturday) peak hour relative to the original study.

The parking and traffic report indicates that, based on Village parking studies and their analysis that the 300 public parking spaces will be sufficient to accommodate the peak public parking demand and the majority of the retail demand. They note that at certain times the garage could be full during the week and users would need to seek public parking spaces in the near vicinity. Within 400 feet of the site there are available parking spaces on-street, in surface lots, and structures. However, the weekend parking demand would be less. This is due to the fact that the Lake and Forest garage has several daytime office users during the week that are not present on the weekends.

The Village has not experienced notable parking utilization changes in the Lake and Forest Garage or immediately adjacent publicly managed surface parking lots since the parking demand study of 2009. Therefore, staff concurs that the 300 public parking spaces proposed within the 588 space structure continue to be sufficient and in consideration of the proposed changes in use (e.g. apartments) within the mixed-use development.

Staff concurs that the 288 private parking spaces proposed within the 588 space structure are sufficient with the condition that three spaces be provided for a car sharing/car membership service such as I-Go or Zip Car. Staff notes that the Oak Park Place Apartments (aka Whiteco project) currently utilizes 210 parking spaces in the attached Holley Court Parking Structure for their 200 apartments. Staff is in agreement with the consultant's calculation relative to Whiteco's current utilization ratio of 1:1.05 which is less than proposed by Sertus Capital at 1:1.07. The Holley Court Parking Structure currently has two I-Go cars available. The concept of "shared parking" within a parking structure is positive and

consistent with the direction the Village is taking in regards to management of the parking system. By allowing for and encouraging shared parking, the required number of parking spaces for mixed use developments can be reduced, especially when there is a mix of uses on a single site.

**BUSINESS/DEVELOPMENT; Economic Development – Our Plans.** The 2005 Greater Downtown Master Plan calls for the addition of 1200 residential units to this area specifically targeting this development site for new housing opportunities. The GDTMP states that the addition of housing “brings economic vitality to downtown by fostering 24-hour activity and lively active streets. Urban housing residents help financially support downtown retail, restaurant and other services. The addition of 270 new residential units to this area would bring the total of new residential units added to the area since the GDTMP adoption in 2005 to 600 or 51% of the stated goal.

The GDTMP sites four key requirements for the Housing Framework each of which is met by the proposed development: 1. Building housing over retail and or parking, 2. Locating housing within walking distance of transit, 3. Locating housing new amenities, 4. Providing parking on-site.

Additionally, the 2007 Retail Strategy Report highlights the recruitment of a few select national chain concepts to broaden the market draw and facilitate the recruitment of high-quality independents as a key recommendation. The study states “A carefully selected set of national chain concepts can help set the proper tone or foundation for the intended retail strategy. They add credibility to an area; bring an expanded base of customers which in turn help entice a better quality pool of independents while enhancing their consumer traffic.” The addition of 25,000 square feet of Class-A retail space addresses this key recommendation, and will provide significant and critical support to our existing retail base.

**Economic Development – The Numbers.** Staff contends that a \$71M investment at this critical gateway site represents a bold testament to the desirability of the Oak Park Market during a troubled economic time, and will act as a catalyst to attract new development to our community.

Financial institutions have provided credible letters of interest for the financing of the project lending credibility to both the project and to the Oak Park community. The addition of over 200 jobs during the construction phase of the project and the addition of 350 - 400 new permanent employees and residents strengthens both the daytime and evening populations providing additional consumers for local retail. The completed project as presented is projected to generate over \$1.5M.

**TRAFFIC;** In 2007, the Village implemented a new traffic signal timing plan along Lake Street from Marion to Oak Park Avenue. Metro Transportation, a traffic consultant, developed the plan as part of the re-opening of North Marion Street. The intersection of Lake and Marion was also widened to accommodate left turns and an entirely new signal sequence was introduced. Metro also developed the plans for the signal modifications at the corner of Lake and Marion.

The traffic signals on Lake Street are interconnected into a complete traffic signal system that is managed by a central computer. Timing plans are in place for all arterial streets in the Village with emphasis on traffic progression. Each signalized intersection is

equipped with pedestrian crossing signals which are typically activated by push buttons. When activated, additional time is added to the signal to allow for safe passage across the street. Earlier this year, the pedestrian push buttons at 4 intersections on Lake Street were removed and the pedestrian signals were set to operate at all times throughout the day. Having the pedestrian signal activated at all times add approximately 30% more time to the overall signal cycle length at a typical intersection.

Three of the 4 corners where these changes were made are geometrically offset intersections. The signals at these locations operate with three separate phases, each of which has their own pedestrian phase. Because of this, the cycle lengths increase by up to 50%. The likelihood for pedestrians to be crossing at each of the corners at all times of the day and night is extremely low. Operating these corners with the current configuration stops traffic throughout the day and night when there is no pedestrian demand to cross the street. Traffic in the meantime must wait cycle after cycle which adds to the congestion along Lake Street. Operations could be greatly improved by going back to the original configuration.

There is new technology available which would automatically detect pedestrians much the same way as vehicles are detected on the roadway. The cost to add this to a typical corner is about \$30,000. To do this at all 4 corners along Lake Street would add up to \$120,000. Such an investment is minor compared to the overall plans for the area.

**Item Budget Commentary: (Account #; Balance; Cost of contract)** There is no budget associated with the application. If approved, the village financial contribution for the parking structure is determined by the Redevelopment Agreement and ultimately by actual construction costs.

**Item Action Options/Alternatives (List the alternative actions; list the positive and negative implications of each; if no alternatives, explain why):**

Alternative: Approve the application and allow the development to occur as modified for all the reasons mentioned above. Approval would initiate the new design and use as proposed. To approve the application and overturn the Plan Commission's recommendation would require a super-majority vote by the Village Board.


**Proposed Recommended Action:** The staff recommendation is to approve the application and overturn the Plan Commission's Recommendation and direct staff to prepare the necessary documents.

Att - Findings of Fact and public comments



Date: January 5, 2012

To: President Pope and Village Board of Trustees

From: Tom Barwin, Village Manager 

Re: Recommendation - Lake and Forest Mixed Use Development

### **EXECUTIVE SUMMARY OF PROJECT**

The proposed mixed use development at the North East corner of Lake and Forest, before the board for consideration, has evolved over the past four years. Over the course of the past four years, having survived the so called "Great Recession", the project has been the subject of numerous staff reviews, board updates, and 28 public meetings.

The Village has retained an independent financial analyst throughout the project as well as an architectural advisor. Both professions have provided invaluable analysis and tangible assistance to staff in the review and shaping of the project before the board.

The collaborative public-private proposal before the board includes 270 apartments, 25,417 square feet of retail and a 588 space public/private parking garage. The parking garage will include 300 enclosed public parking spaces which will remain owned by the Village, and will replace the deteriorating open air public parking structure at Lake and Forest, which is in poor condition.

### **VILLAGE FINANCIAL OBLIGATION**

The Redevelopment Agreement (RDA) with the private Developer, Sertus LLC, calls for the Village to be responsible for the costs (and future maintenance) of the public parking component of the project only at a not to exceed cost of \$28,800 per space, which totals to \$8,640,000, plus financing.

The Village will pay for the financing of the public parking component of the project with property tax revenue's from the project during the remaining life of the downtown Tax Increment Finance District and Parking Fund Revenues.



## **DEVELOPER OBLIGATION**

The RDA requires the Developer to finance and build the project as approved at an estimated cost of \$82.9 Million (which does not include the Village Public Parking Component) within the timeframes and requirements included in the RDA between the Village and Sertus LLC.

## **RECENT PROJECTS COMPLETED**

Despite the challenges of the great recession, the Developer recently completed a similar development in the nearby community of Des Plaines. See enclosed report from the City of Des Plaines.

## **RECOMMENDATION**

Based on an analysis of the record related to this project, input and consensus of staff, with strong support for the project from our major economic development partner, the Oak Park Development Corporation (OPDC), and our collective findings listed below, my office recommends the board approve of the proposed mixed-use development at Lake and Forest by Sertus LLC as currently proposed:

1. A Tracy Cross & Associates Market Analysis (a nationally recognized housing expert firm) of Oak Park housing and population projections independently verifies the Village of Oak Park does need additional rental housing at the levels proposed
2. In 2011, the Chicago Metropolitan Planning Council (CMAP) prepared information, as part of the Homes for a Changing Region Report for the Village of Oak Park, which showed a need for additional rental units for households earning more than \$50,000
3. In the past the Plan Commission and Village Board have supported a 1:1 ratio between dwelling units and parking spaces in the Greater Downtown Area. This is consistent (and in some cases in excess) with the regional standard set in transit rich districts.
4. The parking and traffic report indicates that, based on Village parking studies and their analysis that the 300 public parking spaces will be sufficient to accommodate the peak public parking demand and the majority of the retail demand.

Note: Current zoning does not require parking for first and second story commercial however, there are over 2,000 public parking spaces within ¼ mile of the development site.

5. The 2005 Greater Downtown Master Plan calls for the addition of 1200 residential units to this area specifically targeting this development site for new housing opportunities. The addition of 270 units results in 50% of new residential target accomplished to date.
6. Urban housing residents help financially support downtown retail, restaurant and other services.
7. The addition of 25,000 square feet of Class-A retail/commercial space will provide significant and critical support to our existing retail base, and new jobs into the district.
8. A \$82M investment at this critical gateway site represents the desirability of the Oak Park Market during a troubled economic time, and will act as a catalyst to attract new development to our community.
9. The addition of over 200 jobs during the construction phase of the project and the addition of 350 – 400 new permanent employees and residents strengthens both the daytime and evening populations providing additional consumers for local goods and services.
10. Approximately 400 new residents living in downtown Oak Park will bolster the commerce district and not place undo burden on the infrastructure or agencies within the community. At one time, Oak Park's population peaked at over 66,000, currently at 51,878.
11. Significant new tax base - An initial estimated tax increment of \$1.3 mm per year and a sales tax (local component only) of \$70,000 from the new retail spaces, and a significant building permit fee (in excess of \$600,000). Following the sunset of the downtown TIF in 2019, the new tax base will benefit all local government agencies including and especially D97 and D200.
12. From an urban planning standpoint the project enlivens a key location in the Lake Street corridor and serves as a desired bridge between DTOP proper and the Avenue District, which is expected to add vitality to the area.

13. Puts the current Village-owned land improved with the existing parking deck on the tax roles; however, the new public parking spaces, irrespective of who holds title to them (sale lease back option in the RDA) will be tax exempt, to help assure low cost and competitive parking rates.
14. Art work per the existing PUD approval at the building's base/corner.
15. Improvements to Austin Gardens.
16. Improvement to parking operations at Lake and Forest in the new facility which will be managed under a single operating agreement for both the public and private portions of the facility in order to maximize utilization and revenues.
17. Improvements to the 19th Century Club parking lot and the Club building itself (per private agreement).
18. LEED-Silver certified project that takes advantage of a transit-oriented location and is therefore a lower impact development compared to smaller projects would be. Included in the environmental benefits of the project is the placement of 3 I-Go cars, thereby decreasing car usage and traffic impacts in the building itself and in the vicinity in general.
19. Architectural impact of the project will enhance the location by improving 1) delivering a signature building at a prominent location designed by an internationally recognized design architect.
20. Beautifying the parking lot adjacent to the 19th Century Club with an articulated and green façade.
21. Upgrading the streetscape around the building with materials consistent with VOP's improvements on Marion Street or as otherwise selected by the Village for the area surrounding the building.
22. Implementation demonstrates Oak Park is attractive to future investors interested in high quality projects, helping to lesson tax burden on current residents and property owners.



**City of Des Plaines**  
**Community Development**  
Office of the Director  
1420 Miner Street  
Des Plaines, IL 60016  
Tel: 847-391-5306  
Fax: 847-391-5371

December 27, 2011

Thomas Barwin  
Village Manager  
Village of Oak Park  
123 Madison St.  
Oak Park, IL 60302-4272

Mr. Barwin,

As you know I have just recently relocated to the Chicago land area. I became the Director of Community and Economic Development for the City of Des Plaines in December of last year. Previously I spent 13 years in the City of Sterling Heights, Michigan as the Assistant City Manager.

As I understand it Michael Glazier, on behalf of Sertus Capital Partners, LLC is proposing a development in your Village. I also understand that through the public hearing process the project undertaken by Sertus, LLC in Des Plaines has been called into question. While I was not here during construction of the project, I can confirm to you that my office has issued a full and complete Certificate of Occupancy for the building. The project is a 144 unit, nine-story residential building that has approximately 67 units occupied.

The project construction began in late 2007 and then the financial crisis hit the real-estate market. Construction then slowed for a period of time. However the developer was able to financially restructure the project, complete construction, and repositioned it as a rental property. It seems the project is now back on course and is an asset to downtown Des Plaines. I have been involved in local government and community development for over 30 years. I can tell you that every construction project has its challenges along the way. This developer has seen their way through the challenges and onto a successful completion of the project.

With regard to the overall quality of the building it is my opinion that the structure and the interior finishes are constructed to a high standard. In fact, when I had to relocate to Des Plaines for my job I choose to move into the building before I knew anything about the Developer. I still currently reside in the building and would be happy to show you the interior if you would like to visit the property.

Should you have any questions, please feel free to call at (847) 391-5373.

Respectfully,

Michael G. Bartholomew, MCP, LEED AP  
Community Development Director

## SERTUS PROJECT - LAKE & FOREST DEVELOPMENT TIMELINE

<b>2006</b>													
Oct/Nov	Sertus Acquired Property & Request Initial Meeting w VOP												
<b>2007</b>													
March 14th	Architectural Survey - Public Meeting												
April	VOP/Sertus Negotiations Begin												
<b>2008</b>													
June 9th	Term Sheet Approval - 2 Alternatives Approved												
	<table border="0"> <thead> <tr> <th>Alternative 1 w/Hotel</th> <th>Alternative 2 w/o Hotel</th> </tr> </thead> <tbody> <tr> <td>29,537 SF Retail</td> <td>29,537 SF Retail</td> </tr> <tr> <td>49,945 SF Office</td> <td>45,945 SF Office</td> </tr> <tr> <td>140 Hotel Rooms</td> <td>0 Hotel Rooms</td> </tr> <tr> <td>70 Residential Units</td> <td>140 Residential Units (70 Rental/70 Condo)</td> </tr> <tr> <td>530 Parking Spaces</td> <td>554 Parking Spaces</td> </tr> </tbody> </table>	Alternative 1 w/Hotel	Alternative 2 w/o Hotel	29,537 SF Retail	29,537 SF Retail	49,945 SF Office	45,945 SF Office	140 Hotel Rooms	0 Hotel Rooms	70 Residential Units	140 Residential Units (70 Rental/70 Condo)	530 Parking Spaces	554 Parking Spaces
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<b>2009</b>													
June 29th	RDA Approved by VOP Board												
	<ul style="list-style-type: none"> <li>60 - 100 Condominium Units</li> <li>Approx. 27,000 SF Retail</li> <li>140 Unit Hotel</li> <li>488 Space Garage</li> </ul>												
August	PUD Application Received												
	<ul style="list-style-type: none"> <li>85 Condominium Units</li> <li>27,000 SF Retail</li> <li>140 Room Hotel</li> <li>510 Parking Spaces</li> </ul>												
September 8th	Board Referreal to P/C												
September 17th	PUD/Public Meeting												
October 8th	PUD/Public Meeting												
October 22nd	PUD/Public Meeting												
November 5th	PUD/Public Meeting												
November 12th	PUD/Public Meeting												
December 3rd	PUD/Public Meeting												
December 17th	PUD/Public Meeting												
<b>2010</b>													
January 7th	PUD/Public Meeting												
January 14th	PUD/Public Meeting												
February 18th	P/C Findings of Fact												
March 8th	1st Reading - VOP Board Review												
March 15th	PUD Approval - VOP Board												
July 10th	1st Amendment to the RDA - Demolition Extension Approved												
November 22nd	2nd RDA Amend./1st PUD Amend. approved - Project Schedule Extension												

**2011**

March 10th	2nd PUD Amendment - Project Extension Approved
May 3rd	Sertus Requests RDA Amendment - Restating Project Description 270 Residential/Retail Units 25,000 SF Retail 588 Parking Spaces
August 4th	VOP Board Refers New Project Description to P/C
August 25th	PUD/Public Meeting
September 1st	PUD/Public Meeting
September 15th	PUD/Public Meeting
October 6th	PUD/Public Meeting
October 20th	PUD/Public Meeting
November 3rd	PUD/Public Meeting
November 17th	PUD/Public Meeting
December 5th	VOP Board - Plan Commission Findings Review

**MEETING SUMMARY**

- 1 - General Meeting
- 10 - VOP Board Meetings
- 17 - VOP Plan Commission Meetings
- 7 - Stakeholder Meetings

**ANSWERS TO QUESTIONS  
FOR THIS AGENDA ITEM**

**FROM THE DECEMBER 5<sup>TH</sup>  
REGULAR MEETING**



## MEMORANDUM

**DATE:** December 22, 2011  
**TO:** Thomas W. Barwin, Village Manager  
**FROM:** Craig Failor, Village Planner  
**Re:** Lake and Forest – Board Questions

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Attached are responses to the Village Board's questions from their December 5, 2011 meeting with back up materials attached relative to the Lake and Forest Planned Development.

If you have any questions, please contact me, or any of the individuals who have provided responses, at your convenience.



## **Village Board Questions regarding Lake and Forest Planned Development Amendment**

*From December 05, 2011 meeting*

1. PC - Why in the Findings of Fact was there statements regarding Standards and Opinions – why did some commissioners not trust information that was presented and why was it stated in the findings.
2. STAFF-Parking: What opportunities are there to direct guests to Holley Court? With only 300 public parking spaces – space is limited.
3. STAFF- Housing: Can the BOT require the developer to work with Housing Services and the Housing Center to ensure diverse tenancy?
4. STAFF – Parking/Planning: 288 spaces for L/F – The ratio at Whiteco is higher now- Should L/F reduce units or increase parking based on Whiteco?
5. STAFF – Planning: GDTMP recommends 1,200 units over 20 years. ½ way there now. Is it better to have concentrated development in one area or better to be scattered through out the GDT, relative to traffic, etc...
6. DEV / STAFF: Economic analysis – what is the development bringing back to the community?
7. STAFF-Business Services: Whiteco – proposal vs. reality relative to economics.
8. STAFF-Engineering: Traffic at Lake and Forest - increased traffic flow due to advanced technology and expense to do so.
9. STAFF – Planning/Plan Comm: Mixed message between Comprehensive Plan, Zoning, and GDTMP. How does the PC reconcile these through the planned development process?
10. STAFF – Housing/ Planning: ULI Housing Case Study – why higher density? A summary would be helpful.
11. PC – Findings of Fact 60, 61, 62, 63- regarding Traffic Congestion – applied evidence to concerns / 64 DPW –mitigate current hot spots – north on Forest
12. PC /STAFF – Planning: Fof F page 25 define streetscape improvements
13. PC /STAFF – Planning: Fof F – define public art
14. PC /STAFF – Planning: Fof F page 28 Post Construction Study
15. PC /STAFF – Planning: Fof F page 29 Building materials – look at glass type - any glare?
16. STAFF – Planning: GDTMP what is the number of public parking spaces anticipated.
17. STAFF – Housing: Scattered site housing for detached single family
18. STAFF – Parking/Engineering: Cost of Garage
19. STAFF – Business Services/Dev: Independent analysis / financial capability \_\_ Whiteco projections.
20. PC: F of F – Cash payment to 19CCA – happened before?
21. STAFF-Finance/Parking: Item budget commentary – Parking Garage cost officially - Need total debt for DT TIF, cost backed by what money,
22. STAFF-Parking: Work with Developer and 19CCA to work out best parking situation.
23. STAFF – Engineering: Current traffic counts during day and night on Lake Street
24. STAFF – Planning: Is Underlying Zoning Density the right number. Land mass / unit – any changes needed?
25. STAFF – Planning: All planned development projects review for pre-tax and post-tax.

## RESPONSES.....

### **1. PC - Why in the Findings of Fact was there statements regarding Standards and Opinions – why did some commissioners not trust information that was presented and why was it stated in the findings.**

The Plan Commission wanted to make sure the Findings of Fact reflected the nature and format of its deliberations. While the commission did review the standards, the findings reflect the issues raised during deliberations. The findings and the meeting minutes document the basis for individual commissioner's decisions. While the discussions referenced the GDTMP and the Downtown-Lake Street Building Height and Massing Overlay District, the underlying density assumptions included in the Comprehensive Plan were largely ignored by some commissioners. In the minds of some commissioners, the applicant did not make a direct and strong tie between its request for 270 units to the Comprehensive Plan maximum density of 383 units assumptions. Some commissioners focused on the underlying density of the zoning ordinance (98 units) while others focused on the Massing Overlay District (180 units). These commissioners gave little consideration to the Comprehensive Plan density limit of 383 units.

No credible evidence was presented to challenge the applicant's witnesses. There was no evidence presented to suggest that the applicant's witnesses did not use "Best Practices" in their respective fields of expertise. Most of the testimony in opposition to the applicant's project was based on opinions rather than facts. Some testimony identified issues of concern that were addressed in conditions proposed by the PC if the project were to be approved.

### **2. STAFF-Parking: What opportunities are there to direct guests to Holley Court? With only 300 public parking spaces – space is limited.**

The Village promotes all three of the public parking garages located in the downtown districts. To the extent one facility has excess capacity over another facility, the Village can reduce quarterly permit parking or shift it to another location (garage or surface lot) which is underutilized.

I think it is noteworthy that the Village has not experienced notable parking utilization changes in the Lake and Forest Garage or immediately adjacent publicly managed surface parking lots since the parking demand study of 2009. Therefore, staff concurs that the 300 public parking spaces proposed within the 588 space structure continue to be sufficient and in consideration of the proposed changes in use (e.g. apartments) within the mixed-use development.

### **3. STAFF- Housing: Can the BOT require the developer to work with Housing Services and the Housing Center to ensure diverse tenancy?**

The Board of Trustees could require the developer to work with the VOP Housing Programs Division and the Oak Park Regional Housing Center (OPRHC) to affirmatively market the rental units at Lake and Forest. After discussing this issue with Rob Breymaier, the Executive Director of the OPRHC, and looking at the diversity levels of comparable downtown buildings, it appears that existing downtown rental buildings are able to maintain high levels of diversity with limited assistance. (See attached confidential demographic information.) We would expect the same to be true of the Lake and Forest building. The OPRHC and the VOP Housing Programs Division could work with the management company of Lake and Forest to develop an affirmative

marketing strategy for the units and the OPRHC could provide listings to prospective tenants to help facilitate affirmative moves. The more intensive OPRHC services such as escorting of prospective tenants and evaluating marketability of units would probably not be necessary in this development given the newness of the units and the marketing strategies that are typically used in newer large scale developments. NOTE: *Confidential information has been provided on blue paper from Tammie Grossman, Housing Services Manager.*

**4. STAFF – Parking/Planning: 288 spaces for L/F – The ratio at Whiteco is higher now- Should L/F reduce units or increase parking based on Whiteco?**

In speaking with the Oak Park Place Apartment representatives, the occupancy ratios annually in December reach the low (85%) and surge upwards again to a high (as much as 100%). The parking utilization also shifts moderately, however, under the agreement with Whiteco, the Oak Park Place Apartments are required to purchase a minimum of 200 spaces from the Village regardless of utilization. Therefore, staff maintains that the 210 parking spaces utilized while the facility was at 100% occupancy is a valid reference point for evaluating the Sertus parking ratio.

**5. STAFF – Planning: GDTMP recommends 1,200 units over 20 years. ½ way there now. Is it better to have concentrated development in one area or better to be scattered through out the GDT, relative to traffic, etc.**

The GDTMP was adopted in 2005 with a desire for the development of at least 1,200 dwelling units over the next 20 years. As of 2011, there are 347 dwelling units either online or under construction. This equates to approximately 29 % of the desired amount. If the Lake and Forest Development occurs, another 270 units will come on line in 2014, which totals 617 or 51% of the desired amount. This year is about the half way mark (2015) and about half of the desired residential amount (1,200). First, it should be stated that having this number of dwelling units, whether concentrated or not, in the GDT area is essential to its health and prosperity. The question is whether or not concentrated development or scattered development is better. It's not an easy question to answer. What does concentrated housing mean for our community; concentrated in one geographical area of the community or in particular section of a geographical area. It has been the guiding principle to concentrate higher density housing in commercial districts and multi-family districts near public transit; the former being with higher concentrations. However if we focus on a specific section of a geographical area, like DTOP the area is not that expansive as to believe that any development impacts in the area are exclusive of one another. If the GDT is considered the geographical area, the condensed impacts relative to traffic or use of the roadway could be lessened somewhat. DTOP has been considered the section of the GDT area to retain higher densities, as indicated in the 1990 Comprehensive Plan and Zoning Code based on less restrictive height limits, as well as the GDTMP. Also, there are limited sites in the GDT area that can accommodate additional residential development. The available sites are within DTOP and to a lesser degree in the Pleasant District, just south of the rail lines. Some developments could be commercial only. If you wish to achieve the desired density the GDTMP suggests, and are limited to a small number of development sites, concentrated density will occur. If it does occur, limiting the number of potential vehicles in the area by limiting the number of parking spaces for residential development is essential to help maintain the infrastructure and reduce congestion.

**6. DEV / STAFF: Economic analysis – what is the development bringing back to the community?**

- A. Approximately 400 new residents living in downtown Oak Park (helping keep population above 50,000 for federal and state grant purposes)
- B. 23% of the targeted 1,200 residential units called for in the GDTMP
- C. An initial estimated tax increment of \$1.3 mm per year and a sales tax (local component only) of \$89,000- \$178,000 from the new retail spaces, and a significant building permit fee (in excess of \$600,000)
- D. From an urban planning standpoint the project enlivens a key location in the Lake Street corridor and serves as a bridge between DTOP proper and the Avenue District
- E. Brings back/brings new improved retail configured in purpose built-space to the corner of Lake and Forest. (The medical office building on the N/W/C was a department store called Littons, so there is precedent that this location is viable).
- F. Puts the current Village-owned land improved with the existing parking deck on the tax roles; however, the new public parking spaces, irrespective of who holds title to them (sale lease back option in the RDA) will be tax exempt.
- G. Ripple effect in DTOP during construction from an estimated 200 construction workers who will park and eat there.
- H. Art work per the existing PUD approval at the building's base/corner
- I. Improvements to Austin Gardens
- J. Improvement to parking operations at Lake and Forest in the new facility which will be managed under a single operating agreement for both the public and private portions of the facility in order to maximize utilization and revenues.
- H. Improvements to the 19th Century Club parking lot and the Club building itself (per private agreement).
- I. LEED-Silver certified project that takes advantage of a transit-oriented location and is therefore a lower impact development compared to smaller projects would be. Included in the environmental benefits of the project is the placement of 3 I-Go cars, thereby decreasing car usage and traffic impacts in the building itself and in the vicinity in general
- J. Architectural impact of the project will enhance the location by improving 1) delivering a signature building at a prominent location designed by an internationally recognized design architect; 2) beautifying the parking lot adjacent to the 19th Century Club with an articulated and green facade; 3) upgrading the streetscape around the building with materials consistent with VOP's improvements on Marion Street or as otherwise selected by the Village for the area surrounding the building.
- K. Purchasing 300 new public parking spaces at an improved cost per space as a result of it being constructed within a larger scale mixed-use project (economies of scale)
- L. Obtaining delivery of the new public parking facility through a public-private partnership that places the delivery risk and responsibility on the developer until completion. (Also, the project will be fully bonded with the Village also obtaining a separate completion bond). This displacement of risk is a direct benefit to the community.
- M. Offering new accessible (ADA compliance requires 4% of units are accessible or adaptable) housing in the community
- N. Providing new housing alternatives in the community that appeals to newcomers to Oak Park seeking an attractive, high quality rental unit as to start putting down roots there. (Adds new residents). At the same time, the project will offer conveniently located, single-level, zero-maintenance housing for existing residents looking to downsize both physically and financially their housing solution while staying in the community. (Resident retention).
- O. With its height, the building can, provided it would be permitted by the Village, offer a suitable location for wind turbines, the effectiveness of which is directly related to its height as

wind velocity and consistency increase with height. (See this web link:[www.sullivanenergygroup.com](http://www.sullivanenergygroup.com))

P. By adding supply to the Oak Park market to meet pent up demand, which is evidenced by climbing rents and 95% occupancy, the new project will slow rent increases in the community by offering new choices to prospective renters.

Q. \$70 MM in construction equates to the creation of \_\_\_\_\_ F.T.E. jobs over the construction period.

**7. STAFF-Business Services: Whiteco – proposal vs. reality relative to economics.**

See Number 19 below.

**8. STAFF-Engineering: Traffic at Lake and Forest - increased traffic flow due to advanced technology and expense to do so.**

See attached Memorandum from Jim Budrick, Village Engineer.

**9. STAFF – Planning/Plan Comm: Mixed message between Comprehensive Plan, Zoning, and GDTMP. How does the PC reconcile these through the planned development process?**

There seems to be continuing confusion regarding the nature and purpose of Planned Development tools. Planned developments are allowed to provide flexibility in zoning and development. While planned developments are generally limited to the uses permitted in the underlying zoning district, it is a special use tool which is intended to encourage innovative and creative development or redevelopment. The nature of that objective suggests that changes to the underlying zoning will be needed. It is the applicant's job to justify those changes based on the standards and goals and objectives of the village's adopted plans. It continues to be a challenge to help the public and commissioners understand the purpose and intent of planned development. Perhaps in the future, the commission should include in its hearing procedures, a brief explanation of this zoning tool.

**10. STAFF – Housing/ Planning: ULI Housing Case Study – why higher density? A summary would be helpful.**

See attached Executive Summary.

**11. PC – Findings of Fact 60, 61, 62, 63- regarding Traffic Congestion – applied evidence to concerns / 64 DPW –mitigate current hot spots – north on Forest**

The traffic study submitted by the applicant appeared to some commissioners to be in conflict with what they informally observe today. The commission was unaware of the changes in signal timing that the village implemented in 2007 that has likely contributed to the current congestion along Lake Street. One of the conditions proposed by the PC was to conduct a traffic study 6-12 months after the project is completed. This condition should be further refined to be tied to an occupancy level in the development acceptable to the BOT. Additionally, it would be helpful in the future to require that all traffic studies show current peak and off-peak traffic volumes on surrounding streets.

## 12. PC /STAFF – Planning: Fof F page 25 define streetscape improvements

Streetscape improvements are defined in a letter submitted with the original application, which is still valid, by Rolando Acosta attorney for Sertus dated February 18, 2010 which states the following:

### *1) Enhanced Streetscaping*

*The sidewalk area along the property's frontage will be improved with granite curbs, and sidewalks, landscaping, street furniture as appropriate all in accordance with a plan approved by Village Staff. We estimate the costs for this element to be approximately \$200,000.*

## 13. PC /STAFF – Planning: Fof F – define public art

The scope of this amendment review did not include changes to the public art approved in the previous application. The PC did not review nor discuss any changes to that condition. The memorandum from the applicant (mentioned above) outlines the current status of the public art commitment (see below). The commission included a reference to public art so as to eliminate any confusion about it remaining as a requirement. Public art is defined which states the following:

*At the Arts Commission meeting the south facing wall a the Forest and Lake reentrant corner was suggested as a location for a public art. We believe this location is ideal as it is visible from the public way as also weather protected. The nature of the art work will be selected later in consultation with the Arts Commission. Also Austin Gardens: The Park personnel identified four areas that they are considering four our contribution. These are 1) provide seed money for a new multi-purpose pavilion as outlined in the Park's master plan; 2) donation toward costs of reconfiguring the south entrance to the park; 3) a onetime donation to the Oak Park Festival Theatre; or 4) provide funding toward the maintenance of the Pillow Sculpture. A total budgeted amount for Public Art and Austin Gardens elements of \$50,000.*

Recent conversations with Michael Glazier produced the following statement. This is a change and should, if acceptable, be included in the Ordinance and RDA.

*To clarify our commitment to the OP Park District regarding Austin Gardens and to the community for public art, I offer the following:*

*Lake Street Investors previously agreed under the original PUD to contribute in-kind improvements to to-be-determined by the Park District in Austin Gardens. We agreed that with a large construction project going on nearby, the Park District could avail itself of the purchasing power from the project to obtain certain physical improvements to Austin Gardens, including both their procurement and installation, as decided by the Park District, and thereby obtain a much better value than perhaps it could by directly purchasing them itself. With respect to the public art, it was agreed that we would install, not as an architectural element of the building but as separate piece, either sculpture, mural or the medium of art inside the building but displayed outwards beneath the colonnade at the corner. The art work was to be selected in cooperation with the Public Arts Advisory Commission. Both these commitments were to total \$50,000.*

*In an effort to better define and improve this arrangement, I [Michael Glazier] would like to suggest that we modify the above arrangements as follows:*

*A. Lake Street will contribute in kind or cash, as determined by the Park District, \$40,000 for improvements at Austin Gardens, again as determined by the Park District; and*

*B. Lake Street will procure leased art as agreed to with the PAAC for 2 years after completion of the project to display at the corner from inside the building. The art work will rotate on a semi-annual basis, unless agreed otherwise, and at the end of 2 years a final piece of art will be selected and permanently installed. The benefit of this approach are threefold: 1) it allows us (Lake Street and PAAC) to evaluate a few pieces of art over the course of time such that community input can be gauged and factored into selection of a final piece of art; b) the rotation of the art will create a new point of public interest at the building; and c) it will allow ample time to carefully search for the piece that is finally selected and will be a fixture in the community for years to come. Lake Street will commit \$35,000 to this effort, making for a total commitment to both Austin Gardens and public art of \$75,000.*

*We are open to further discussions on this commitment, but generally we feel this is a good and meaningful contribution to the community from us as a good corporate partner.*

Staff recommends that the \$75K be divided as follows: \$50K for public art, and \$25K for Austin Gardens.

#### **14. PC /STAFF – Planning: Fof F page 28 Post Construction Study**

A number of comments dealt with the economic impact on the areas surrounding the proposed development. The Plan Commission has adopted a common practice to require impact studies on issues such as traffic, parking and general conditions as a way to mitigate any adverse impacts on existing properties. Neighboring businesses and residents are invited to help develop the scope of such studies.

#### **15. PC /STAFF – Planning: Fof F page 29 Building materials – look at glass type - any glare?**

The Plan Commission did not specifically discussing low-glare glass. One commissioner did bring up the use of glass that is "bird-safe". Inherent in that comment/request is that the glass should not be highly reflective. The architect mentioned several times that they wanted to use glass with a lot of transparency especially at the south end of the tower so that people could see what is going on inside the tower and restaurant. He also showed the commission a sample of the glass they are considering. It did not look like "reflective" glass. Commissioners did not want glass that has a high amount of reflection. No-glare would be very expensive and typically not very energy efficient. It is important to reduce glare (increase transparency) and have glass that performs well to keep energy usage down.

Given that the bulk of the glass is oriented north-south, and therefore faces east, where there are no residential buildings, and west, where the same condition applies, the amount of glare to residences on the north shouldn't be too great.

The Commission discussed very specific revisions to the materials and design features during the hearing process, however, the applicant and its architect repeatedly stated that it was too early in the design phase to commit to specific construction materials. The applicant and its architect

stated that final decisions on materials would be based on review comments as well as construction costs. Final material samples should be submitted for the Village Planner's review and approval for adherence to Plan Commission recommendations. While final designs and materials lists were not available for the Plan Commission review, it is appropriate for the Board of Trustees to insist on these specific materials and design features being part of any project approval. The Plan Commission hearing notes and Findings of Fact refer to the dated drawings last reviewed by the commissioners and may be used by Trustees in their deliberations.

**16. STAFF – Planning: GDTMP what is the number of public parking spaces anticipated.**

The GDTMP suggests that 3,000 additional parking spaces (private and public) be developed within the GDT area, post 2005 when the Plan was formally adopted. This anticipates 1,200 for residential at a 1:1 ratio, 414 for 207,000 square feet of new retail, 242 for 121,000 square feet of new office, 40 for 20,000 square feet of new civic/cultural use, with 1,100 remaining. An analysis of the recommendation follows: If you were to subtract from the 3,000 recommended parking spaces a 1:1 ratio for the recommended residential dwelling units (1,200 units) that would leave 1,800 public parking spaces, based on full build-out of the Plan relative to future retail, office, and cultural demands. The GDTMP suggests 750 spaces at the Lake and Forest site to accommodate future retail, employment, and cultural demands, as well as 528-1,000 on the North Boulevard flat lot east of Old Navy to accommodate future retail and office needs. The Plan also suggest some at grade and below parking on the flat lots located at Harlem / Maple and South Boulevard, but does not specify an amount nor whether it is public or private. Therefore of the remaining 1,800 parking spaces, approximately 400 are proposed for the Colt site, 500 were added to Holley Court Garage, 100 may be added to the Harlem/Maple site, leaving a balance of 800 parking spaces.

**17. STAFF – Housing: Scattered site housing for detached single family**

The West Cook County Housing Collaborative is working on a scattered site single family housing strategy for the member communities. The Collaborative received funding from the Department of Commerce and Economic Opportunities (DCEO) to acquire and rehab foreclosed single family housing near transit. The Collaborative will sell the homes to income qualified homeowners. The Collaborative did consider a rental housing strategy but decided against it. The management of scattered site rental housing requires more resources and is difficult to effectively oversee. The Collaborative felt that it would be difficult to attract a quality management company to oversee over 100 single family homes and that a homebuyer strategy was more effective. The Village of Oak Park has rental housing scattered in smaller buildings through out the Village and we have implemented the Small Rental Housing Rehab program to encourage owners to maintain the units and make the units more energy efficient.

**18. STAFF – Parking/Engineering: Cost of Garage**

See attached Memorandum from Jim Budrick, Village Engineer.

**19. STAFF – Business Services/Dev: Independent analysis / financial capability \_  
Whiteco projections.**

See attached document. Also see confidential information on blue paper provide by Loretta Daly, Business Services Manager.



**20. PC: F of F – Cash payment to 19CCA – happened before?**

Yes. To our knowledge, the Plan Commission has not included such a condition in the past. The Association identified a number of specific issues and concerns about the proposed development and its impact on the historic building and the Association as an ongoing concern. The applicant met with Association representatives and offered to assist the Association with some of its financial concerns. In addition, the applicant agreed to work with the Association to mitigate the impact on the adjacent parking lot during construction. By including these agreed upon actions in the Findings of Fact, the plan commission hoped to codify these agreements. While detailed information on the costs of some of these improvements was not known during the public hearing and the Commission's deliberations, the applicant and the Nineteenth Century Charitable Association were comfortable with the amount included in the Findings of Fact.

**21. STAFF-Finance/Parking: Item budget commentary – Parking Garage cost officially -Need total debt for DT TIF, cost backed by what money,**

The FY 2012 Parking Fund budget will require an amendment to provide for the cost associated with the construction of the public portion of the parking garage. Based upon the RDA previously approved by the Board, between the Village and Sertus that expenses are capped at \$8,640,000 for construction, plus interest incurred if financed over a 30 year period. If financed, initial financing debt through the parking fund furthers the public parking garage component is planned to be retired as aggressively as possible for TIF property tax revenue that are received from the development, estimated to be over \$6MM through 2018. The remaining balance following the sunset of the TIF will be paid with property taxes from the development and parking revenues from the Lake and Forest structure and parking fund. The Village has multiple options to fund this debt including but not limited to parking revenue backed general obligation bonds or private financing.

**22. STAFF-Parking: Work with Developer and 19CCA to work out best parking situation.**

As envisioned in the RDA, staff has consistently recommended during the review process of the Sertus Development at Lake & Forest that the parking garage, inclusive of both the public and the private spaces, should be managed by a single entity in order to maximize both unitization and revenue. Sertus has consistently supported this direction and has been proactive in discussing options (both related to management and technology) that will maximize garage utilization by the public when private capacity is available. There are many examples of how this can be accomplished, such as the utilization of valet parking during peak times. To the extent adjacent private property owners, such as the Nineteenth Century Club have parking demands that are not met on their private property, the Village will always seek out opportunities to identify underutilized public parking to meet private parking needs.

**23. STAFF – Engineering: Current traffic counts during day and night on Lake Street**

See attached document from Jim Budrick, Village Engineer.

**24. STAFF – Planning: Is Underlying Zoning Density the right number. Land mass / unit – any changes needed?**

Planned Development	General Location	Approved Units	Allowed Units	% Increase
100 Forest Place	Lake Street @ Forest Avenue	234	203	15%
Euclid Terraces	SWC/NEC Lake and Euclid	96	124	NA
The Opera Club	100 Block of South Marion Street	39	19	105%
Whiteco Residential	SEC Harlem and Ontario Street	206	130	58%
[SoHo]	SWC Home Avenue at South Blvd	32	42	NA
Avenue Club Condos	SEC Oak Park Avenue at S. Blvd	42	53	NA
Lake / Forest	NEC Lake Street and Forest Avenue	225*	98	130%
Lake / Forest -Amendment	NEC Lake Street and Forest Avenue	270	98	175%

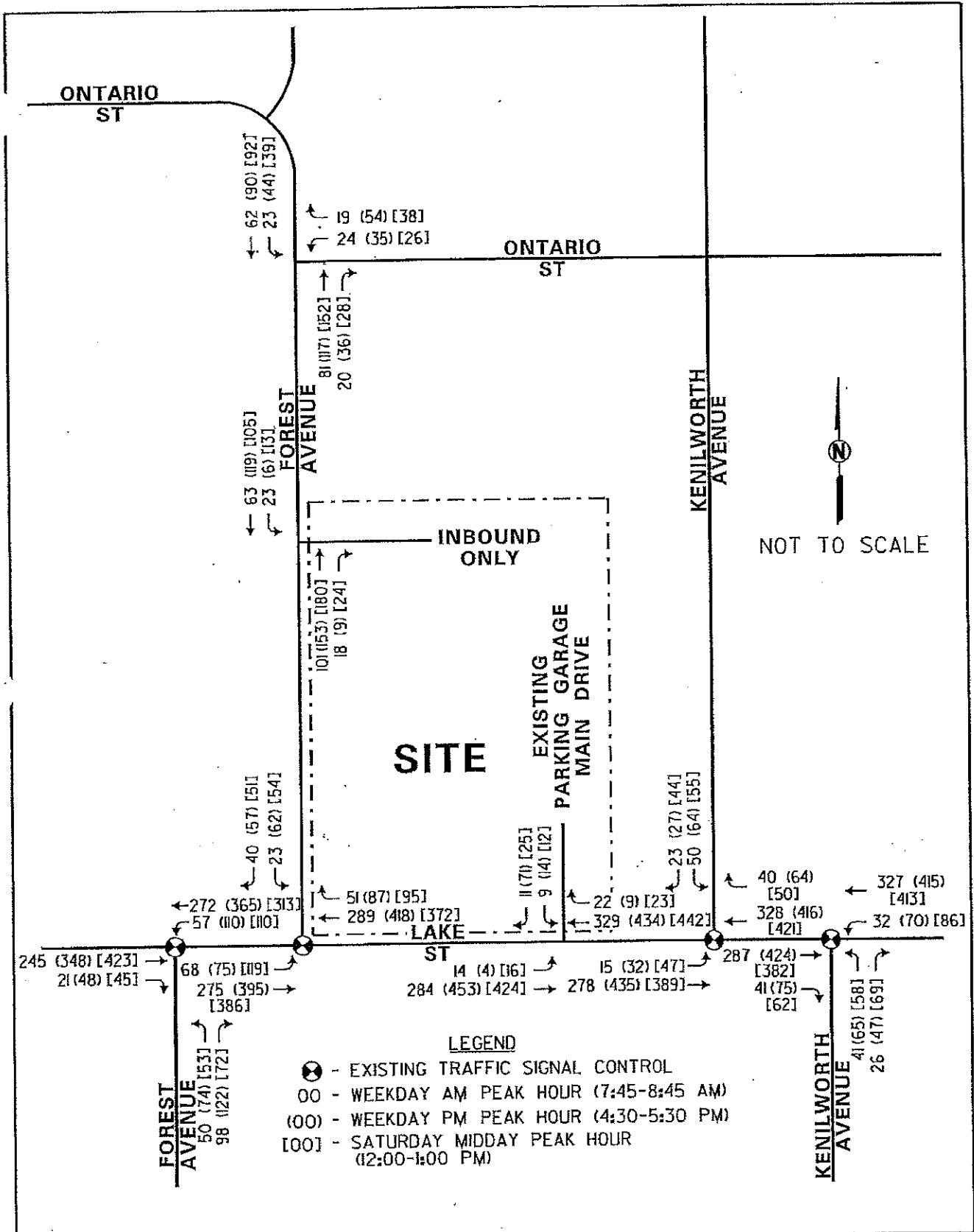
\*Hotel rooms were converted into dwelling units for this exercise.

The table above shows past history regarding approved density in the GDT area. In most cases where planned developments were approved with an increase in density, they are located in DTOP and the Pleasant District. Generally when there are continuous allowance/variance approvals for the same relief, it signals a change may be needed in the zoning code. In the table above there are a variety of density relief requests within the GDT area. However, as stated above, DTOP is the area that should hold the highest density. This is theory is consistent in all the planning documents – just to what degree. Due to the continued approvals of higher density projects in the DTOP area, there appears to be a desire to allow more residential units in the B-4 Downtown Business District than the Zoning Ordinance currently provides. The anticipated comprehensive plan process will help ascertain the appropriate density for this area; which will in turn dictate any changes to the Zoning Ordinance. Even outside agencies like CMAP have indicated through their current *Homes for a Changing Region* project that Oak Park needs more rental and owner-occupied housing to meet the needs of the community at either end of the income spectrum. The best and available locations for new housing is near the transit areas, particularly within or adjacent to our business districts.

There are several factors that seem to be influencing the request for higher density residential developments in the DTOP area. They generally are land values, population maintenance, demand for transit rich areas, and built in patrons for nearby retail businesses. There needs to be a determination on what the saturation point might be relative to residential development and what impacts will be created. Are 1,200 units as recommended in the GDTMP that point? Crandall Arambula felt the additional units were necessary for a healthier retail environment, but did not indicate this would be the saturation point.


**25. STAFF – Planning: All planned development projects review for pre-tax and post-tax.**

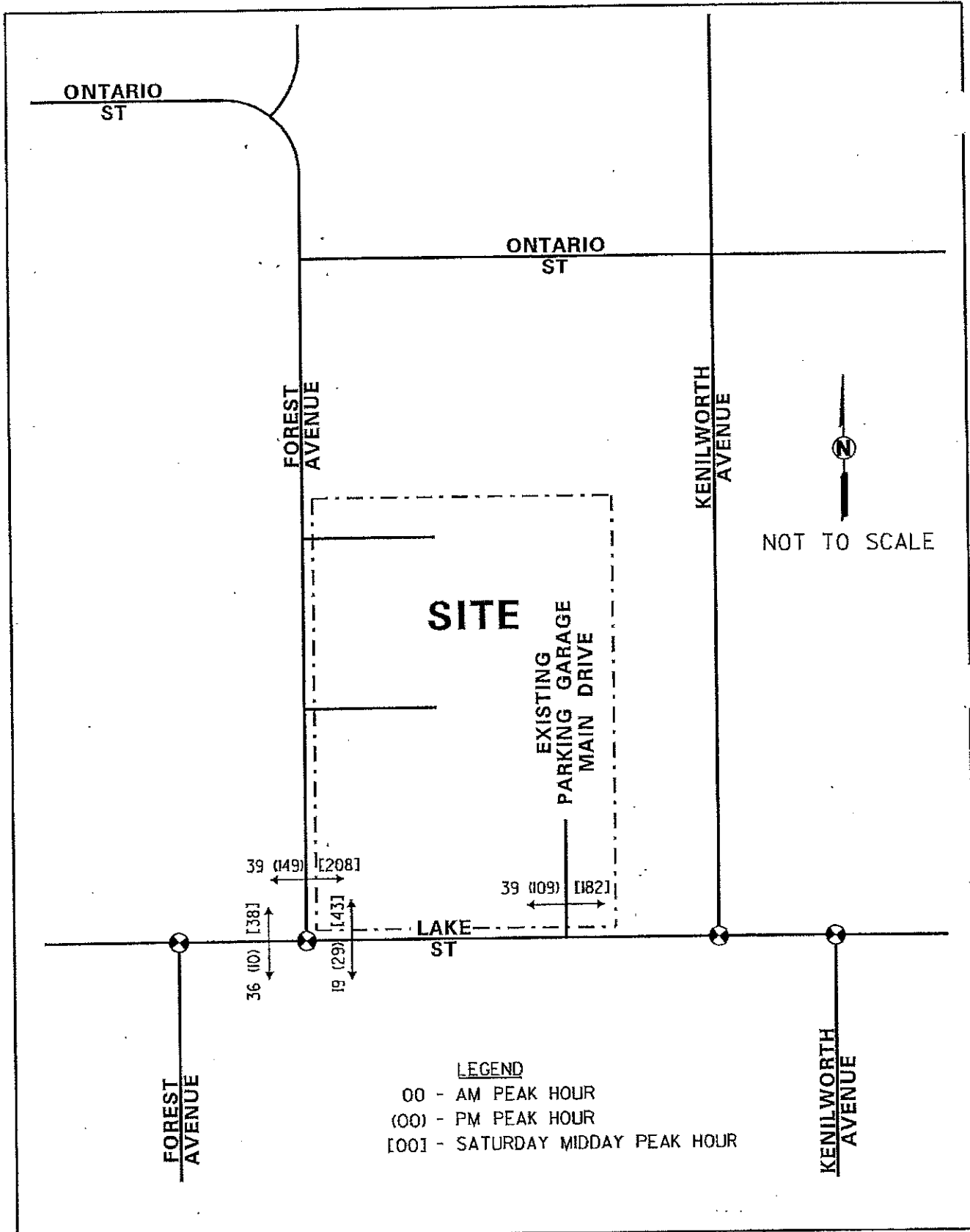
This information will be provided at a later date in January.



PROJECT:  
 MIXED USE DEVELOPMENT  
 OAK PARK, ILLINOIS

TITLE:  
 EXISTING PEAK HOUR TRAFFIC


PROJECT NO: 09-101  
  
 FIGURE NO: 3



**LEGEND**  
 00 - AM PEAK HOUR  
 00 - PM PEAK HOUR  
 000 - SATURDAY MIDDAY PEAK HOUR

PROJECT:  
 MIXED USE DEVELOPMENT  
 OAK PARK, ILLINOIS

TITLE:  
 AM, PM, AND SATURDAY MIDDAY  
 PEAK HOUR  
 PEDESTRIAN FLOW

PROJECT NO: 09-101  
  
 FIGURE NO: 4

Village of Oak Park  
Department of Public Works  
Engineering Division

**MEMORANDUM**

December 9, 2011

TO: Tom Barwin, Village Manager  
FROM: Jim Budrick, Village Engineer  
RE: Updated Capital Needs at Forest Lake Garage

This memo is in response to the Board discussion concerning the Forest Lake Parking Garage. The last time a complete assessment of the garage was done was in 2002. At the time recommendations were made for two levels of repairs to provide up to 7 and 15 years of additional serviceability of the garage, respectively. The lower of the 2 options was selected and work was done in 2003/4. We have reached the point where a decision is needed to try and extend the service life of this facility or to completely demolish the structure.

I recently went through the garage to make a general assessment. Overall the basic structure is in poor condition. A new detailed assessment should be performed to outline the exact needs and develop a cost estimate similar to what was done in 2002.

The areas I observed needing the most attention are the elevator, stair towers and general concrete repairs throughout the facility. Should the facility continue to be used there is a need to install additional equipment as part of the existing automated revenue control system. The existing equipment was installed as a temporary measure in January, 2010 by relocating some equipment from the Holley Court Garage. This equipment also replaced the part-time personnel who collected parking fees during the day previously.

Following is a list of items that should be considered for the garage in the coming 6 to 18 months.

1. conduct detailed assessment of the structure (\$30,000)
2. replace elevator (\$140,000)
3. replace doors with ADA buttons in towers (\$45,000)
4. clean and paint both stair towers (\$40,000)
5. upgrade electrical panels (\$75,000)
6. repair security push button system (\$40,000)
7. install new security cameras (\$80,000)
8. install pay-on foot stations (\$160,000)
9. repairs to concrete deck surface (\$150,000)
10. repairs to columns and overhead concrete (\$150,000)
11. replace caulk and joints where needed (\$35,000)
12. clean and paint columns (\$20,000)
13. replace drainage pans and piping (\$45,000)
14. seal and re-stripe the entire deck (\$40,000)
15. contingency 10% (\$105,000)

16. plan preparation and construction oversight ,15% (\$175,000)

Total estimated cost \$1,330,000

Given that the majority of this work is specialized in nature we would need to use the services of a consultant to prepare the plans and oversee the work.

Should you need any further information please let me know.

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Village of Oak Park  
Department of Public Works  
Engineering Division

**MEMORANDUM**

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December 9, 2011

TO: Craig Failor, Village Planner  
FROM: Jim Budrick, Village Engineer  
RE: Lake and Forest Current Traffic

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This memo is in response to the Board's questions concerning current traffic counts for Lake and Forest. The most recent data is from the study KLOA conducted for the development project. The data consisted of peak hour vehicle and pedestrian counts which was used to perform their analysis for the development. These counts were taken in August of 2009. I have arranged to have new counts taken at the intersection so we can see if conditions may have changed.

I have attached a copy of the traffic and pedestrian count data from KLOA's report for the Board's information. Once I receive the newest data I will tabulate it and provide you with a copy.

Should you need any additional information please let me know.

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Village of Oak Park  
Department of Public Works  
Engineering Division

**MEMORANDUM**

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November 8, 2011

TO: Craig Failor, Village Planner  
FROM: Jim Budrick, Village Engineer  
RE: Lake and Forest Development and Traffic Issues

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This memo is in response to your request for information regarding the traffic issues in the Lake and Forest area. In 2007, the Village implemented a new traffic signal timing plan along Lake Street from Marion to Oak Park Avenue. Metro Transportation, a traffic consultant, developed the plan as part of the re-opening of North Marion Street. The intersection of Lake and Marion was also widened to accommodate left turns and an entirely new signal sequence was introduced. Metro also developed the plans for the signal modifications at the corner of Lake and Marion.

The traffic signals on Lake Street are interconnected into a complete traffic signal system that is managed by a central computer. Timing plans are in place for all arterial streets in the Village with emphasis on traffic progression. Each signalized intersection is equipped with pedestrian crossing signals which are typically activated by push buttons. When activated, additional time is added to the signal to allow for safe passage across the street. Earlier this year, the pedestrian push buttons at 4 intersections on Lake Street were removed and the pedestrian signals were set to operate at all times throughout the day. Having the pedestrian signal activated at all times adds approximately 30% more time to the overall signal cycle length at a typical intersection.

Three of the 4 corners where these changes were made are geometrically offset intersections. The signals at these locations operate with three separate phases, each of which has their own pedestrian phase. Because of this, the cycle lengths increase by up to 50%. The likelihood for pedestrians to be crossing at each of the corners at all times of the day and night is extremely low. Operating these corners with the current configuration stops traffic throughout the day and night when there is no pedestrian demand to cross the street. Traffic in the meantime must wait cycle after cycle which adds to the congestion along Lake Street. Operations could be greatly improved by going back to the original configuration.

There is new technology available which would automatically detect pedestrians much the same way as vehicles are detected on the roadway. The cost to add this to a typical corner is about \$30,000. To do this at all 4 corners along Lake Street would add up to \$120,000. Such an investment is minor compared to the overall plans for the area.

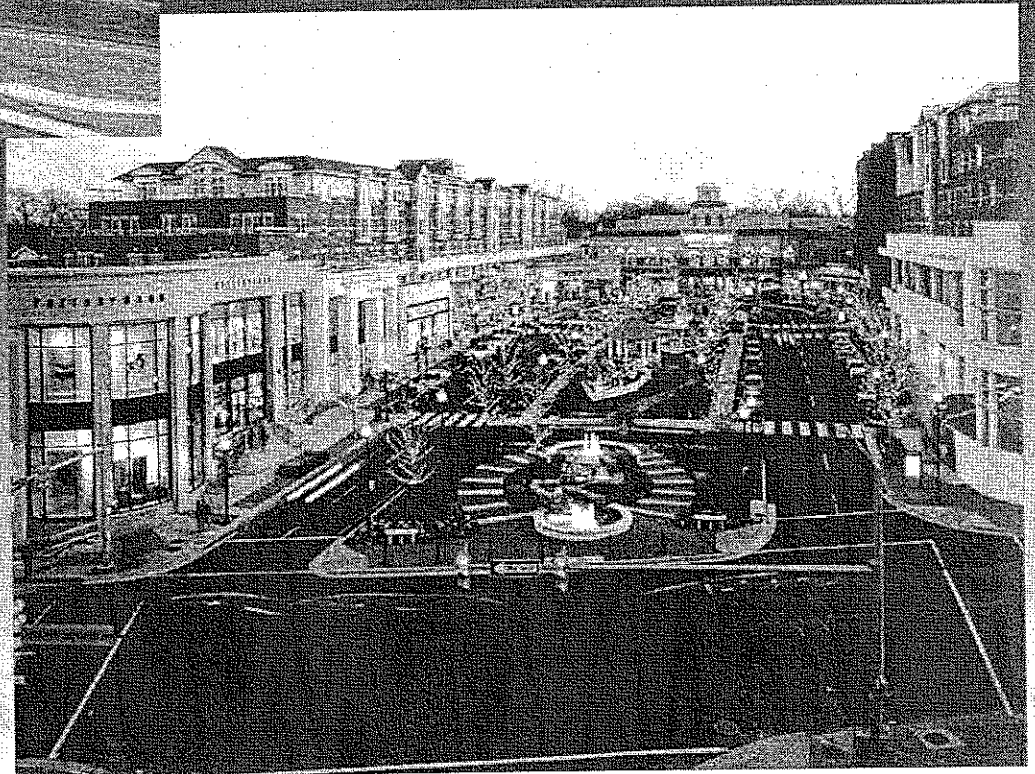
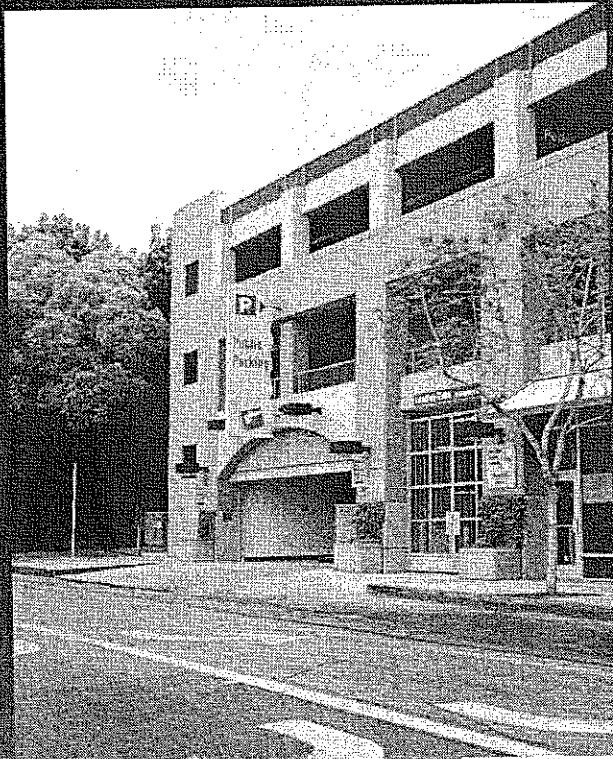
Should you need any additional information please let me know.





# Parking Spaces / Community Places

## Finding the Balance through Smart Growth Solutions



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# **Parking Spaces / Community Places**

## **Finding the Balance through Smart Growth Solutions**

**Development, Community, and Environment Division (1807T)  
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# Introduction

**W**hen you shop, you may visit a mall, or go to your town's main street. At the mall, you probably cruise past rows and rows of empty parking, the spaces filled only one day a year. Maybe you head downtown, but can only find vacant storefronts. And where things are bustling, you can't find convenient parking near the stores you want to visit. All three of these scenarios represent a "parking problem" that has a negative impact on other community goals. At the mall, overbuilt parking consumes land and wastes money. Downtown, storefronts may sit empty because new businesses that would like to move in can't meet high parking requirements – and too little parking makes good businesses less viable.

But what does parking have to do with the environment, and the U.S. Environmental Protection Agency (EPA)? Research and reports from EPA and others show that the way we develop our communities has a major impact on the quality of the natural environment. Regions with walkable, mixed-use, compact neighborhoods, towns, and cities, knit together by a robust network of transportation and environmental corridors, protect human health and the natural environment. The research shows that development reflecting smart growth principles can lead to reduced growth in air pollution and less polluted runoff into streams and lakes. It also leads to a reduction in the amount of pristine land consumed by development, which can help preserve habitat for many species. Air pollution is reduced because such compact areas make it easier for some people to choose to walk and bike for some trips, and others will be able to drive shorter distances or take transit. Along with fewer and shorter trips by car comes a reduced need for parking, and that means less land needs to be paved for parking lots or garages. That reduces development costs and leaves more open ground that can filter rainwater, and more open space for birds, animals, and people to enjoy. For a thorough discussion of the connections between development patterns and environmental quality, see *Our Built and Natural Environments: A Technical Review of the Interactions Between Land Use, Transportation, and Environmental Quality* (EPA, 2001a).

Many communities are evaluating parking issues as part of a broader process of reevaluating their overall goals for growth. They want and need new residents and jobs – for vitality, economic growth, and other reasons – but they need to decide how and where to accommodate them. In cities, towns, and countryside, new and newly rediscovered development patterns offer solutions. In many places, walkable town centers that offer stores, workplaces, and housing in close proximity are replacing malls and office parks, offering shops and dining along with places to live and work. New neighborhoods offer different housing types and daily conveniences within a pleasant, safe walking distance. Vacant, underused and contaminated sites



can be reclaimed and benefit their communities with new jobs and housing, improved recreational opportunities, and increased fiscal stability. Many communities are working to offer choices to residents, so they can take a train, ride a bike, or walk instead of driving, if that is what is best for them and their families. Whether the resulting development patterns are called smart growth, quality growth, or balanced growth, they work by creating great places.

Communities and developers recognize that compact, mixed-use, walkable places need parking to thrive. Retail activity in particular requires convenient parking spaces that can handle high turnover. Businesses almost always need some parking for their employees, but the amount needed can vary widely. The need for parking may shift throughout the day as people come to shop, employees head to work, and residents go out for the evening. Residents and employees in more compact areas usually own fewer cars and drive less than is typical in conventional developments. Yet typical parking regulations and codes simply require a set amount of parking for a given square footage or number of units, assuming all trips will be by private automobile and ignoring the neighborhood's particular mix of uses, access to transit and walking, and context within the metropolitan region. Such inflexible parking requirements can force businesses to provide unneeded parking that wastes space and money. The space and money devoted to unnecessary parking could be used to accommodate other homes, businesses, shopping, or recreational opportunities in the community. In some cases, rigid parking standards can discourage or even prevent development, because providing it is just too expensive – and developers are usually offered no alternative.

In cities and counties across the country, inflexible minimum parking requirements are the norm -- but they represent a barrier to better development, including redevelopment of vacant city land and contaminated sites. EPA developed this guide for local government officials, planners, and developers in order to:

- demonstrate the significance of parking decisions in development patterns;
- illustrate the environmental, financial, and social impact of parking policies;
- describe strategies for balancing parking with other community goals; and
- provide case studies of places that are successfully using these strategies.

The policies described in this report can help communities explore new, flexible parking policies that can encourage growth and balance their parking needs with their other goals. The case study in this report of the SAFECO Corporation (see page 50) illustrates the potential to use parking policies to

save money, improve the environment, and meet broader community goals. SAFECO has its corporate headquarters in the Seattle region. To accommodate new employees, this insurance company built three new buildings and underground parking garages. In an effort to balance parking needs with their financial, environmental, and design goals, they choose to offer employees transit passes, vanpool and rideshare incentives, or parking. Over 40 percent of SAFECO’s employees choose an alternative to driving alone. As a result, each year SAFECO’s 1700 employees drive about 1.2 million miles less than average commuters in the Seattle region, saving 28 tons of carbon monoxide, a serious pollutant tracked by the EPA. SAFECO also reduced the amount of ground that needed to be paved by 100,000 square feet, leading to less runoff in this rainy area. The company saves an estimated \$230,000 per year, after accounting for the costs of incentives and the savings from reducing the amount of parking built.

Several EPA programs recognize the superior environmental performance of alternatives to driving alone and to conventional low-density, single-use development patterns. For example, EPA and the U.S. Department of Transportation sponsor the successful Best Workplaces for Commuters program (EPA, 2005a), which advocates employer-provided commuter benefits that encourage shifts from long-distance solo driving and parking. On a regional level, EPA offers areas that wish to recognize the emissions benefits of smart growth guidance for “Improving Air Quality Through Land Use Activities” (EPA, 2001b). EPA has also published “Protecting Water Resources with Smart Growth” (EPA, 2004), which includes 75 policies and programs that help meet water quality and other community goals. EPA and its partners in the Smart Growth Network (see box) also offer very successful resources on the policies and actions that create smart growth. “Getting to Smart Growth” (ICMA, 2002) and “Getting to Smart Growth II” (ICMA, 2003), published by the International City/County Management Association and the Smart Growth Network, detail 200 policies that communities have used to create new development to serve the needs of their residents and businesses, local governments, and the environment. For more information on these and other resources, and instructions on how to receive them, visit [www.epa.gov/smartgrowth](http://www.epa.gov/smartgrowth).

This report adds to this collection of resources, pointing communities and developers to proven techniques for balancing parking and other goals to enhance the success of new compact walkable places. The report begins with a discussion of the demand for parking and a review of the costs of parking. The following sections detail innovative techniques and case studies explain how they have been used to solve parking problems in specific places.

### ***Principles of smart growth***

Smart growth is development that serves communities, the economy, public health, and the environment. The original Smart Growth Network partners articulated the following principles describing smart growth, based on their experience in communities nationwide. These principles have since been adopted by many organizations and communities to help describe the development patterns they seek to create.

1. Mix land uses.
2. Take advantage of compact building design.
3. Create a range of housing opportunities and choices.
4. Create walkable neighborhoods.
5. Foster distinctive, attractive communities with a strong sense of place.
6. Preserve open space, farmland, natural beauty, and critical environmental areas.
7. Strengthen and direct development toward existing communities.
8. Provide a variety of transportation choices.
9. Make development decisions predictable, fair, and cost-effective.
10. Encourage community and stakeholder collaboration in development decisions.

For more information, visit [www.epa.gov/smartgrowth](http://www.epa.gov/smartgrowth).

***About the Smart Growth Network***

The Smart Growth Network, formed in 1996, is a loose coalition of organizations and individuals that believe that where and how we grow is important to our communities, health, and environment. The network is led by a partnership of over thirty private sector, public sector, and nongovernmental organizations that work to help create better development patterns in neighborhoods, communities, and regions across the United States. It also includes a membership organization of over 900 individuals, community organizations, and other stakeholder groups. These organizations endorse the principles listed on the previous page.

The Smart Growth Network partners range from planners and architects to developers and financiers and funders, from community advocates to traditional environmentalists, from real estate agents to transportation engineers, and include both governmental associations and parts of the federal government. For more information on the Smart Growth Network, its partners and membership program, and the annual New Partners for Smart Growth conference, visit [www.smartgrowth.org](http://www.smartgrowth.org).

# 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.

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-

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*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

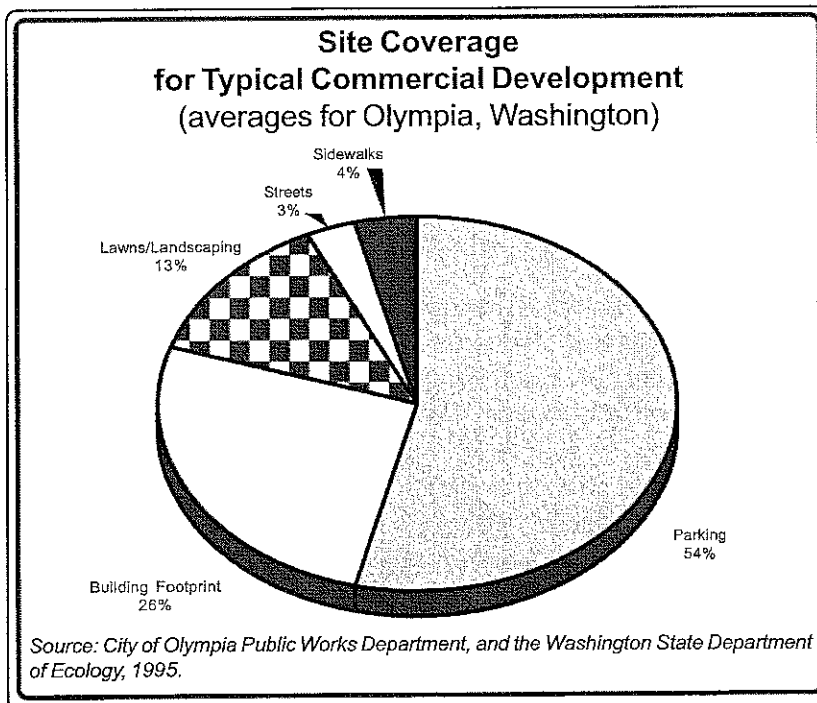
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ern mixed-use development and redevelopment. But parking requirements can be altered to allow planners to better measure the true demand for parking and to balance parking with wider community goals. This approach entails careful consideration of land-use 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

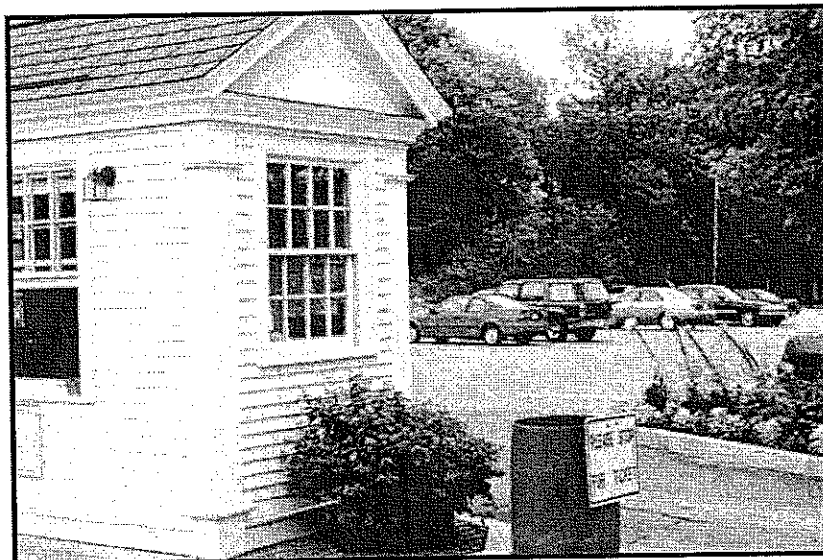
the development, including employees, customers, residents, and visitors. People of different incomes and ages tend to have different car ownership rates.

■ **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

**T**his 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 space<sup>1</sup>. 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.

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*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

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<sup>1</sup>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 based 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

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*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

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parking for retail and other priority uses, along with market-rate commuter parking, in a compact, walkable area with a mix of uses and transportation choices.

Both planners and developers benefit from restricting the number of parking spaces allowed. From the city's perspective, maximum limits:

- Improve the urban environment by preserving open space and limiting impervious surfaces;
- Reduce congestion;
- Encourage attractive, pedestrian-friendly urban design; and
- Promote transportation choices.

From the developer's perspective, maximum limits:

- Minimize costs for parking construction, operations, and maintenance;
- Reduce traffic and traffic-related costs; and
- Allow development at a greater floor-to-area ratio, increasing leasable space.

There are challenges to setting and maintaining maximum limits. Planners must consider possible spillover parking in surrounding residential neighborhoods if parking in those areas is free. To avoid such spillover, developers must understand the factors that affect parking demand and ensure that viable transportation choices exist. A common policy for preventing parking spillover into residential areas is to implement residential parking permit programs, but these have drawbacks (see discussion of parking benefit districts on page 33). Changes in frequency or routing of transit, increases or decreases in development densities, or changes in land use can all influence the demand for parking in the neighborhood.

With restrictive maximum limits on the number of parking spaces, developers may worry about the long-term marketability of a property. Marketability should not be a concern for competing developments in the same locale if all developments must adhere to the maximum limits. Parking restrictions that may seem to place urban areas at a disadvantage can be offset by amenities other than parking, such as convenient access to services and places of employment, attractive streetscapes, or pedestrian-friendly neighborhoods. City governments and developers should

**Linking Maximum Limits and Transit Improvements**  
*Portland, Oregon*

In Portland, Oregon, maximum parking limits vary according to distance from light rail stations. For example, new office space on the light rail transit mall is allowed 0.8 spaces per 1,000 square feet, while office space in Goose Hollow, located several blocks from the transit mall, is allowed 2.0 spaces per 1,000 square feet.

These maximum limits have not been problematic to developers. In fact, property values and customer volume in the parking-restricted areas near transit stations are higher than in other areas. In a 1987 survey of 54 businesses located near light rail transit, 66 percent of business owners said that their businesses had been helped because they were located near public transit; 54 percent reported increased sales volumes as a result of being located near transit, in spite of reduced parking supply.

*Source: Tri-County Metropolitan Transportation District of Oregon, 1999.*



incorporate these elements to attract businesses and residents. Maximum requirements are not ideal for all locations. Municipalities that employ maximum requirements must have accompanying accessible and frequent public transportation. It is also important for the area to be sufficiently stable economically to attract tenants without needing to provide a surplus of parking. A number of cities have implemented maximum parking requirements, including San Francisco and Seattle.

### Shared Parking

The concept of shared parking is based on the simple idea that different destinations attract customers, workers, and visitors during different times of day. An office that has peak parking demand during the daytime, for example, can share the same pool of parking spaces with a restaurant whose demand peaks in the evening. The first shared parking programs arose when developers, interested in reducing development costs, successfully argued that they could accommodate all demand on site with a reduced number of

spaces. The Urban Land Institute (ULI) report *Shared Parking* (2005) presented analytic methods for local governments and developers to use on specific projects, and as mixed-use projects continue to grow in number and sophistication, ULI continues to update this methodology.

By allowing for and encouraging shared parking, planners can decrease the total number of spaces required for mixed-use developments or single-use developments in mixed-use areas. Developers benefit, not only from the decreased cost of development, but also from the "captive markets" stemming from mixed-use development. For example, office employees are a captive market for business lunches at restaurants in mixed-use developments.

Shared parking also allows for more efficient use of land and better urban design, including walkability and traffic flow. Shared parking encourages use of centralized parking lots or garages and discourages the development of many scattered small facilities. A sidewalk with fewer driveway interruptions and more shop fronts is more comfortable and interesting for pedestrians and will encourage walking. Reducing driveways also results in more efficient traffic flow because there are fewer turning opportunities on main thoroughfares. This has the added benefits of reducing accidents and reducing emissions from idling vehicles stuck in traffic.

Establishing shared parking requirements involves

#### Shared Parking

##### Circle Centre — Indianapolis, Indiana

Opened in September 1995, Circle Centre in Indianapolis' central business district offers retail and entertainment destinations. This development contains 630,600 square feet of retail space and 100,000 square feet of restaurant, speciality, and entertainment space, as well as a 2,700-seat cinema. One of the factors that led to the financial success of this \$300 million project was a shared parking arrangement that saved money and allowed a pedestrian-friendly design.

Under generic minimum parking requirements, Circle Centre would have needed about 6,000 parking spaces. By using shared parking, the project was built with just 2,815 spaces. Shared parking for Circle Centre is used for both customers and employees. The mixed-use nature of the development project allows customers to use a single parking space for multiple destinations within the complex. Employees can use nearby off-site parking, particularly in evenings and on weekends when more than 12,000 nearby off-site spaces that normally serve downtown office workers become available. Taking these two shared parking components into account decreases the estimated need for on-site parking by more than 50 percent.

This reduction in parking demand translates into considerable cost savings. At parking costs of about \$10,000 per space for aboveground structured parking, development costs were reduced by about \$30 million. In addition, operating costs were reduced by approximately \$1 million per year.

Source: Smith, 1996.

site-specific assessment or use of time-of-day parking utilization curves, which were developed by the ULI in *Shared Parking*. Planners need to consider several factors when developing shared parking requirements, including the physical layout of the development; the number of spaces for each of the individual land uses; the types of parking users (e.g., employees, residents, or hotel guests who park all day, or customers and visitors who park for short periods of time); and hourly accumulation of parking for each land use.

Montgomery County, Maryland, allows for shared parking to meet minimum parking requirements when any land or building under the same ownership or under a joint-use agreement is used for two or more purposes. The county's ordinance also allows parking reductions based on proximity to transit, participation in TDM programs, or location in the central business district. The county uses the following method to determine shared require-

<b>Calculating Parking for Mixed-Use Developments</b>					
<b>(Montgomery County, Maryland)</b>					
	Weekday		Weekend		Nighttime
	Daytime (9 a.m. - 4 p.m.)	Evening (6 p.m. - 12 a.m.)	Daytime (9 a.m. - 4 p.m.)	Evening (6 p.m. - 12 a.m.)	(12 a.m. - 6 a.m.)
Office	300*	30	30	15	15
Retail	168	252	280*	196	14
Entertainment	40	100*	80	100*	10
<b>TOTAL</b>	<b>508</b>	<b>382</b>	<b>390</b>	<b>311</b>	<b>39</b>

\* Peak demand by use.  
Source: Smith 1983, page 7.

ments for mixed-use developments:

- Determine the minimum amount of parking required for each land use as though it were a separate use, by time period;
- Calculate the total parking required across uses for each time period; then
- Set the requirement at the maximum total across time periods.

The table above illustrates how peak demand occurs at different times of the day and week for different land uses. While maximum parking demand for the office component of the project occurs during the daytime on weekdays, maximum demand for retail occurs during the daytime on weekends, and peak entertainment demand is in the evening. For this example, setting parking requirements using maximum demand would have resulted in requiring 680 spaces (300 spaces for office, 280 spaces for retail, and 100 spaces for entertainment). By recognizing the shared parking potential, the developer cut almost 200 unnecessary parking spaces (about 25 percent), represent-

ing a considerable cost savings.

An American Planning Association report, *Flexible Parking Requirements*, highlights factors that facilitate shared parking (Smith, 1983). The report sug-

gests that for shared parking to function effectively, parking requirements for individual land uses must reflect peak-demand land use and common parking facilities must be near one another. Parking spaces should not be reserved for individuals or groups.

### Centralized Parking Chattanooga, Tennessee

To encourage urban development in downtown Chattanooga while limiting congestion and air pollution, the Chattanooga Area Regional Transit Authority (ARTA) developed a strategy to provide peripheral parking and a free shuttle service. The system is designed for the city's linear central business district and allows workers and visitors to drive to the city, park in one of the two peripheral garages, and use the shuttles to travel up and down the 15-block business corridor. By constructing parking at either end of the business district, ARTA intercepts commuters and visitors before they drive into and through the city center, reducing traffic congestion.

The two parking garages Shuttle Park South (550 spaces) and Shuttle Park North (650 spaces), are owned by ARTA and operated privately. The free shuttle buses are financed through the garages' parking revenues. They depart from each garage every five minutes all day, every day, and pass within walking distance of most downtown destinations.

The electric-powered shuttles transport approximately one million riders each year, making shuttle-served property attractive to businesses. Since 1992, when the shuttle service began, over \$400 million has been spent on development in Chattanooga, including the successful aquarium, over 100 retail shops and over 60 restaurants. ARTA's initiatives won commendation from EPA, receiving a "Way to Go" award in 1996 for innovative transportation solutions that support urban development.

Sources: EPA, 1998; Chattanooga News Bureau, 1999.

### Centralized Parking Facilities and Management

A subset of shared parking is the construction of centralized parking lots and garages. Some cities mandate centralized parking facilities and finance them through development impact fees, in lieu parking fees, or negotiated contributions established during the environmental review process. Centralized parking can be built and operated by a public entity or public/private partnership and reduce the costs of parking because large facilities are less expensive on a per space basis to build and maintain than small facilities. The example in the next chapter of Wilton Manors, Florida, is such a case.

Centralized parking facilities can meet urban design goals if they allow the elimination of small surface parking lots and driveways that interrupt the walkable fabric of mixed-use areas. Centralized parking enables travelers to park once to visit several destinations, potentially reducing on-street congestion from short trips within an area. Developers are sometimes concerned that centralized parking will be inconvenient for building occupants, but these concerns can be addressed in part by building several "centralized" facilities throughout a business district or mixed-use area. Centralized man-

agement can still ensure coordinated policies for their use, maintaining many of the advantages of centralized parking. In other cases, the operator can provide shuttle services to and from centralized garages. Many downtown areas have successfully instituted centralized parking. Some cities, such as Pittsburgh and Chattanooga (see box) operate such facilities at the periphery of the downtown, reducing traffic and mobile source emissions in the core and freeing up land in the center city for other development.

### In-Lieu Parking Fees

In-lieu parking fees are one way to finance such centralized public garages and give developers flexibility in providing parking on-site. Developers

are able to avoid constructing parking on site by paying the city a fee, and the city in return provides off-site parking that is available for use by the development's tenants and visitors. The city determines the fees, generally based on the cost of providing parking.

Cities set fees in one of two ways, either by calculating a flat fee for parking spaces not provided by a developer on site, or by establishing development-specific fees on a case-by-case basis. Shoup (2005) reports that in-lieu fees in the United States range from \$2,000 to \$20,000 per parking space and may or may not reflect the true costs of providing parking. These fees can be imposed as a property tax surcharge or at the time of development permitting.

In-lieu parking fees provide a mechanism for providing parking in balance with other community goals, satisfying the public as well as planners and developers. Using in-lieu fees and centralized garages can:

- Reduce overall construction costs;
- Avoid construction of awkward, unattractive on-site parking that could compromise historic buildings;
- Increase public access to convenient parking;
- Ensure that parking facilities will be used more efficiently; and
- Encourage better urban design with streetscapes uninterrupted by parking lots and driveways.

In establishing in-lieu parking fees, planners must be aware of potential developers' concerns that the lack of on-site parking will make developments less attractive to tenants and visitors. This can be an issue if available public parking is insufficient, inconveniently located, or inefficiently operated. Planners must carefully consider the parking demand for each participating property and provide enough parking to meet this demand in order to avoid creating a perceived or real parking shortage. Planners must also work to ensure that public parking facilities are located and operated in ways that support development.

### **Accounting for Uncertainty**

Estimating parking demand is not an exact science, and a few communities are setting aside land through land banking and landscape reserves that can be converted into parking if shortages arise. Landscaping can often be used to turn this set-aside land into an attractive amenity for the development

**In-Lieu Parking Fees**  
*Coconut Grove — Miami, Florida*

Coconut Grove is a pedestrian-oriented, entertainment, dining, and shopping village in southern Miami. To maintain Coconut Grove's continuous street frontage and keep it attractive to pedestrians, city planners established flexible parking requirements. Developers or property owners have three choices for satisfying minimum parking requirements: they can provide off-street parking, contract spaces elsewhere, or pay in-lieu fees. With little space left to develop and high land costs, most property owners choose to pay the \$50 per space per month fee to the city and use the land for more productive, revenue-generating purposes. The city uses the in-lieu fees to provide shared, structured parking, improve transit service, and maintain the sidewalks and pedestrian amenities. By investing the in-lieu fees in a combination of parking and other improvements, the city helps to keep Coconut Grove walkable and maintain the attractive aesthetic character of the area.

*Source: Coconut Grove Chamber of Commerce.*

or wider community, but requiring new development to purchase additional land as insurance against uncertain parking demand imposes additional costs, which may work against community redevelopment goals.

Land banking and landscape reserves are particularly useful policies when the expected need for off-street parking for a particular use is uncertain, due

to unknown or unusual operating characteristics, or if no data is available to establish need. Cities could respond by requiring the construction of parking spaces that may well sit empty. But these techniques allow supply to be determined by the best estimates, with the security that more parking can be constructed if needed. In some cases, landscape reserves can be required in conjunction with parking reductions granted in return for company plans to reduce private vehicle trips, known as Transportation Demand Management (TDM) plans. If the employer falls out of compliance with the TDM plan, they can be required to go to the expense of constructing additional parking.

Land banking and landscape reserve policies have been implemented in cities throughout Oregon (including Portland), as well as Palo Alto, California; Carmel, California; Cleveland; and Iowa City, Iowa. Palo Alto allows reductions of up to 50 percent in minimum parking requirements, provided that the difference is made up through a landscape reserve. None of the city's landscaped reserves have subsequently been required for

parking.

To avoid confusion with terminology, it should be noted that land banking can also refer to the purchase of land by a local government or developer for use or resale at a later date. Banked land is sometimes used as interim parking to generate revenue generation—parking fees from temporary lots are put towards construction of later phases of the development, and at some point built over into buildings or structured parking.

## **Manage Demand**

While reducing excess parking supply is important in eliminating the waste of unused parking spaces, some communities are looking to directly reduce the demand for parking, by providing people with readily available alternatives to driving. Demand reduction programs include car sharing, subsidies for transit, transit improvements, pedestrian and bicycle facilities, and comprehensive vehicle trip reduction programs that may include telecommuting and/or flexible work schedules to reduce commuting. While these programs are typically developed by local governments, their success often depends

### **Land Banking**

*Iowa City, Iowa, and Palo Alto, California*

Both Iowa City and Palo Alto have enacted land-banking policies in their parking codes. In some neighborhood commercial zones in Iowa City, minimum parking requirements may be waived or relaxed, and land banking used in place of up to 30 percent of the otherwise required parking. If an enforcement official determines in the future that the additional parking spaces are needed, the property owner can be required to construct parking on the land banked area.

Palo Alto's code authorizes the city to defer up to 50 percent of the required spaces as a landscape reserve where the expected need for off-street parking for a particular development is uncertain. The California Park Apartments development, for example, was allowed to defer 22 of the 95 parking spaces required by city code, using the land instead for a family play lot, a barbeque area, and picnic benches. Nearly 15 years after construction, the landscape reserve has not been needed for parking, and the community enjoys the environmental and social benefits of the recreation area.

*Source: Iowa City and Palo Alto Zoning and Parking Codes.*

on the commitment of businesses to implement them effectively.

## Car-Sharing

Car-sharing is a neighborhood-based, short-term vehicle rental service that makes cars easily available to residents on a pay-per-use basis. Members have access to a common fleet of vehicles, parked throughout neighborhoods so they are within easy walking distance, or at transit stations. In programs with the most advanced technology, members simply reserve the nearest car via telephone or the Internet, walk to its reserved space, open the door using an electronic card, and drive off. They are billed at the end of the month, gaining most of the benefits of a private car without the costs and responsibilities of ownership, and without having to search for parking when their trip is over.

In urban neighborhoods with good transit access, car-sharing can eliminate the need to own a vehicle, particularly a second or third car that is driven less than 10,000 miles per year. In San Francisco, nearly 60 percent of households that owned vehicles before joining the car-sharing program have given up at least one of them within a year, and another 13 percent were considering it (Nelson\Nygaard, 2002). Zipcar, which operates in Boston, New York, and Washington, DC, reports that 15 percent of members sell their private car. In Europe, which has a far longer experience with car-sharing, each shared vehicle takes between four and ten private cars off the road -- and out of city parking spaces (City of Bremen, 2002).

In some cities, developers have been allowed to reduce the number of parking spaces if they incorporate car-sharing. Developers may need to contribute towards set-up costs and/or provide parking spaces reserved for car-sharing vehicles as part of a project. Car-sharing can be provided as part of a mitigation agreement with the local jurisdiction in return for a reduction in minimum parking requirements. Alternatively, the parking reduction can be codified through zoning ordinances, as is being considered in Portland, Oregon, San Francisco, and Seattle.

### Car-Sharing, Pricing Strategies

*Van Ness and Turk Development -- San Francisco, California*

This development includes 141 residential units in a dense area of San Francisco, with only 51 parking spaces. The development was granted a substantial reduction in parking requirements—nearly two-thirds—from the city's minimum of 1 space per unit, to 1 space per 2.8 units. The reduction was granted in large part because of the developers' agreement to provide two parking spaces for car-sharing operator City CarShare, accessible to residents and all CarShare members. Strong community and organizational support, as well as proximity to major transit corridors, were also factors.

If the developers had been required to build the additional 90 spaces required by code, they would have been forced to add either subterranean levels or parking lifts, which save space by stacking vehicles on top of each other. These expensive options would have cost between \$1.35 million for lift technology (estimated at \$15,000 per space) or \$8.1 million for additional below-grade parking levels (estimated at \$60,000 to \$90,000 per space).

The developer also "unbundled," parking costs, so that residents are charged for parking separately from rent. The current market rate for parking is \$280 to \$300 per space per month. By charging separately for parking and incurring lower construction costs, the developer is able to keep apartment rents lower.

*Source: Thieophilos Developers, 2002.*

Car-sharing can also be a useful tool to reduce parking demand in commercial developments. Employees can use a shared vehicle for meetings and errands during the workday, allowing them to take transit, carpool, walk, or bicycle to work. Car-sharing works best in compact, mixed-use neighborhoods, where firms with corporate memberships tend to use the vehicles during the day and residents can use them in the evenings and on weekends.

Formal car-sharing programs have been established in many cities, including Boston; Washington, DC; San Francisco; Oakland, California; Portland, Oregon; Seattle; and Boulder, Colorado, and are being established in many others. Some programs are run by non-profits with significant government support. Private for-profit companies, notably Flexcar and Zipcar, are operating in a number of cities, but they often work with the city or the local transit agency to secure reserved parking spaces on city streets or in transit park-and-ride lots. Alternatively, developers can provide shared vehicles themselves, or facilitate informal car-sharing among residents. Car-sharing reduces parking demand, but it also brings a broad range of other benefits, including fewer vehicle trips with less associated pollution, and improved mobility for low-income households who may not be able to afford to own a car, if rental rates are low enough.

### **Incentives for Transit**

Financial incentives to ride transit can help reduce parking demand. They can be provided by employers, by cities, or by residential property managers.

#### **Car-Sharing, Parking Maximums**

*Rich Sorro Commons – San Francisco, California*

Plans for Mission Bay, a 303-acre brownfield redevelopment area in San Francisco, include 6,000 units of housing, office space, university facilities, a hotel, community services, and retail. The city introduced parking maximums in this area to maximize the amount of new housing, make the most of the new Third Street Light Rail line through the neighborhood, and minimize traffic impacts on congested streets and the nearby freeway. Residential parking maximums were set at one space per unit.

One of the first projects completed was Rich Sorro Commons, a mixed-use project with 100 affordable units and approximately 10,000 square feet of ground floor retail. It was constructed with only 85 parking spaces, due to:

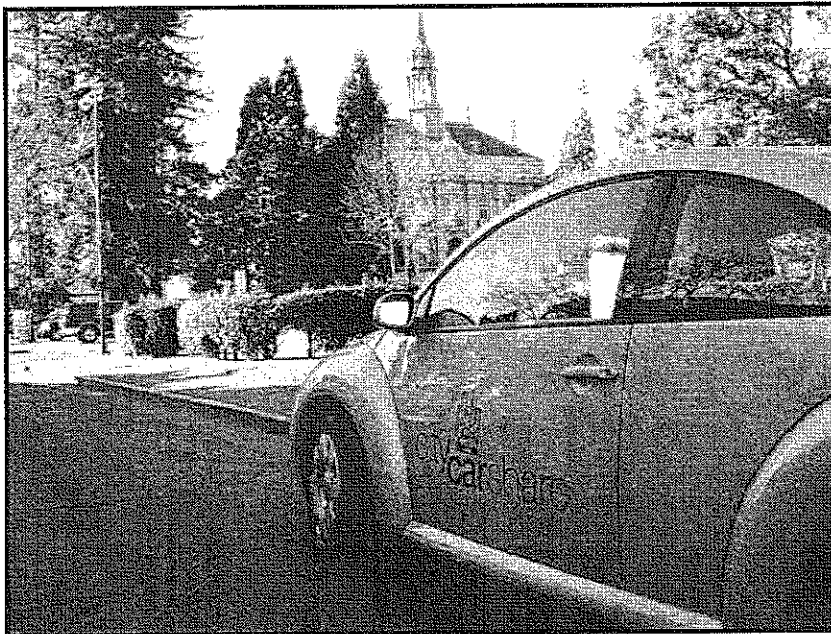
- Excellent proximity to light rail, commuter rail, and frequent bus service;
- Provision of two parking spaces for City CarShare; and
- Units below market rate, with tenants who are less likely to own a car.

With fewer parking spaces, Rich Sorro Commons was able to make space available for a childcare center and retail stores at ground level. The 17 would-be parking spaces were converted to retail space that is expected to generate revenues of \$132,000 annually for the project (300 square feet per space at \$25.80 per square foot in rent), making housing more affordable. The two City CarShare vehicles are available to residents, giving them access to a car without the costs of ownership – a particularly important benefit for low-income households.

*Source: Kenneth Jones, Developer, 2002.*

In the case of employer-paid transit pass plans, the employer pays the cost of employees' transit, often instead of providing a free parking space. This fringe benefit for employees reduces the demand for parking at the workplace, which in turn reduces traffic, air pollution, and energy consumption. It can equalize the transportation benefit that traditionally only went to employees who drove to work and received a free parking space. It also reduces costs, as transit benefits are generally less expensive to employers than providing parking. A transit pass in Los Angeles, for example, costs \$42 per month, whereas the average cost for a parking space is \$91 per month (Shoup, 1997b). To promote transit subsidies, the 1998 Transportation Equity Act for the 21<sup>st</sup> Century changed federal law so that transit benefits are not counted as payroll or as income (see also the description of cash-out programs on page 31). In some cases, city planners respond to employer-paid transit benefits by lowering minimum parking requirements. For example Montgomery County, Maryland's office zoning requirements allows a 15 percent reduction in minimum parking requirements if businesses offer reimbursed transit passes (Smith, 1983). The reduction in required parking can make urban development opportunities more inviting.

Transit incentives can also be useful for residential developments, or even for neighborhoods.. Property managers in Boulder, Colorado, and Santa Clara County, California, for example, can bulk-purchase transit passes for all their



*Courtesy of City Car Share*



residents at deeply discounted rates. The principle is similar to that of insurance—transit agencies can offer lower rates on passes because not all residents will actually use them regularly. Residents can take transit for free, meaning they are less likely to own a vehicle. Another benefit of prepaid transit programs is that they encourage residents to take transit spontaneously, since costs are paid up-front. A person does not have to commit to

transit full-time in order to be able to reduce their demand for vehicle travel and parking. Developers who agree to fund transit passes can thus be rewarded with lower parking requirements.

### Using Parking Revenue to Support Transit

*Boulder, Colorado*

Faced with a shortage of parking for customers, Boulder developed a program to encourage downtown employees to commute by other means. In 1993, Boulder's City Council mandated restricted downtown parking and appealed for parking demand management for the city's commuters.

The Central Area General Improvement District (CAGID), made up of many of downtown's 700 businesses, responded to the Boulder City Council's demands by creating a system using revenue from downtown parking meters to pay for free bus passes. The passes are provided for all of the district's 7,500 employees, and cost \$500,000 each year. The program has changed travel behavior, freeing up valuable customer parking spaces:

- Employee carpooling increased from 35 percent in 1993 to 47 percent in 1997.
- The district's employees require 850 fewer parking spaces.
- The increase in available parking has encouraged more retail customers to shop in downtown Boulder.

Boulder has created a special website with information about parking issues in the region: <http://boulderparking.com>.

The City of Boulder offers deeply discounted Eco-Passes to businesses outside the CAGID and to residents, and encourages walking and bicycling. These programs mean Boulder employees avoid 212,500 single-occupancy vehicle trips per year, saving an estimated two million miles of pollution- and congestion-causing automobile trips. Use is prevented each year.

Source: Boulder Community Network, 1999.

### Transit Improvements

One of the best ways to reduce the demand for parking is to improve transit service so that it is frequent, convenient, and easy to use. Local government officials can improve public transit through major projects, such as adding light rail lines or streetcars, or creating systems that give buses priority at lights and intersections. They can also lengthen transit service hours, increase the frequency of bus and train service, and revitalize transit

stations. Small improvements can also help, such as convenient SmartCard payment systems, improved bus stops and shelters, and real-time directional and schedule information systems. Portland, Oregon's MAX light rail system exemplifies the widespread benefits of transit improvements. The light rail system encourages transit-oriented development, decreases automobile commuting, and eases demand for parking. In fact, the light rail improvements eliminated the need for six downtown parking towers (EPA, 1998). These improvements are also partially responsible for \$1.3 billion in new development in Portland over the last 10 years.

### Pedestrian and Bicycle Facilities

Demand for parking can be reduced by providing pedestrian and bicycle facilities and amenities that make it easier and more pleasant for people to walk or bicycle to work, on errands, or to lunch. These changes can alleviate traffic congestion; for example, the automobile-dependent design of Tyson's Corner, Virginia, has resulted in high volumes of traffic at lunch time because

people cannot walk to restaurants or to run errands.

Promoting bicycling and walking can be accomplished through both comprehensive policies and simple changes to the street. Some jurisdictions have adopted 'complete streets' policies that require every road construction or improvement project to provide safe access for everyone using the road, including transit users, bicyclists, and pedestrians (see [www.completestreets.org](http://www.completestreets.org)). Other communities have focused on closing gaps in the sidewalk or bikeway network, by adding sections of sidewalks, bike lanes, or multi-use paths where needed to ensure safe travel by those modes.

In addition to paying attention to the street, bicycling and walking can be encouraged through design changes that make walking and bicycling more secure and pleasant. The Downtown Master Plan for Kendall, Florida (Miami-Dade County), discusses several design concepts to improve pedestrian and bicycle access. Some of the key elements promoted, but not required, by this program are listed in the text box to the right.

Developers can also encourage bicycling and walking by providing on-site facilities such as bicycle racks and even lockers and showers. For example, officials in Schaumburg, Illinois, a suburb of Chicago, have incorporated provisions into their zoning ordinance to encourage bicycle use. The ordinance requires all retail centers to have a minimum of 10 bicycle spaces located at each main building entrance. To increase awareness, the ordinance requires that bike racks be highly visible; to protect bicyclists, the ordinance requires bicycle parking areas to be separated from automobile parking. Other jurisdictions require covered, secure bicycle parking for employees who will be leaving their bicycles all day.

### **Travel Demand Management (TDM) Programs**

Travel demand management (TDM) programs combine several trip-reduction strategies to meet explicit travel goals. Some TDM programs are put into place by a single employer; others are managed by governments or business improvement districts and focus on a developed area that may include both businesses and homes. These programs typically attempt to decrease the number of trips by single-occupant vehicles, sometimes setting goals such as reduced vehicle trips or reduced miles traveled, while increasing the use of a variety of commuting and travel alternatives, including transit, carpooling, walking, and bicycling. TDM plans can be used by city planners to allow developers to build fewer parking spaces.

#### **Designing for Pedestrians**

*Kendall, Florida*

Close attention to design can dramatically improve the environment for pedestrians. The city of Kendall, Florida, has started to redevelop a conventional mall near a rail station into a new town center. The Downtown Master Plan specifies a number of improvements to create a compact, walkable place with good connections to existing neighborhoods:

- Bicycle/pedestrian access via new sidewalks and pathways.
- Trees and shrubs along edges facing streets and sidewalks.
- Parking hidden in the rear or in parking garages.
- Shade and rain protection for pedestrians, such as colonnades, arcades, marquees, second-floor balconies, wide awnings, or tree canopies.
- Buildings positioned along the sidewalks at a deliberate alignment, giving a designed shape to the public space.
- Doors and windows spaced at close intervals to generate activity, direct views to merchandise, and make walking interesting.
- Minimal number of driveways and parking lot entries that can make walking unsafe and erode urban space.

*Source: Downtown Master Plan, Kendall, Florida, 1998.*

TDM programs may encourage transit incentives, parking cash-out, and other strategies mentioned here. In addition, these programs typically incorporate an assortment of complementary program elements that make it easier for people to give up solo driving. Examples include:

- “Guaranteed ride home” services that allow employees who use public transit to get a free ride home (usually via taxi) if they miss their bus or if they need to stay at work late.

#### Shared Parking, Transit Improvements, TDM Program

*Lindbergh City Center – Atlanta, Georgia*

The Lindbergh City Center is a mixed-use, high-density development in Atlanta on property owned by the transit agency, MARTA. The project was envisioned with a goal of having transit carry 30 percent of all trips to and from the center. The development, which includes a hotel and restaurant as well as office, retail, and residential space, centers on a MARTA light rail station that connects it to downtown Atlanta, the airport, and other areas. Parking reductions were allowed because of shared parking between office and retail uses, because of the ample transit access, and as a result of the Transportation Demand Management programs. Parking requirements for the first phase of the development were reduced by 20 percent overall; for office space the reduction is as high as 70 percent. Condominiums are allowed an 8 percent reduction, from 2 to 1.85 spaces per unit.

Source: Paul Vespermann, Lindbergh City Center, 2002.

- Company fleet cars that can be used for business meetings or running errands during the work-day

- Preferential and/or reserved parking for vanpools/carpools.

- Carpooling and/or vanpooling with ride-matching service. Ride matching through informal “ride boards” or an employee transportation coordinator, helps people find and form carpools

with neighbors.

- Cell phones for carpoolers to facilitate timing of pick-ups.

Employers have little incentive to implement vehicle trip reduction programs if they are not granted reductions in minimum parking requirements. They would not be able to realize the potential cost savings from providing less parking, but would simply be faced with a large number of empty spaces. Some cities, such as South San Francisco (see box), have acknowledged this through ordinances that reduce parking requirements for projects that include vehicle trip reduction programs.

## Pricing Strategies

Although parking is often provided at no charge to the user, it is never free. Each space in a parking structure can cost upwards of \$2,500 per year in maintenance, operations, and the amortization of land and construction costs. Even on-street spaces incur maintenance costs and an opportunity cost in forgone land value. These costs end up hidden in rental fees and even in the costs of goods and services. Donald Shoup, Professor of Urban Planning at UCLA, has published extensively on parking policy in the United States. He believes that accurately pricing parking would solve many park-

ing problems (Shoup, 2005).

The cost of parking is generally subsumed into lease fees or sale prices. However, providing anything for free or at highly subsidized rates encourages overuse and means that more parking spaces have to be provided. Charging users for parking is a market-based approach that passes the true cost of parking to users, and encourages use of other transportation modes. If the fee charged to users of parking facilities is sufficient to cover construction, operation, and maintenance costs, it may encourage some users to seek alternative

transport modes. Even where there are few alternatives to driving, parking pricing can encourage employees to seek out carpooling partners. In addition to reducing the cost of parking provision, pricing strategies bring substantial environmental and congestion benefits, particularly since they tend to reduce peak-period vehicle trips the most.

However, free parking is an ingrained American tradition. An estimated 99 percent (Shoup, 2005) of parking in the United States is free. How can paying for parking ever be a good thing for drivers? Drivers are willing to pay for parking that is more convenient and readily available. For example, on-street spaces near shopping destinations are much more likely to be available to customers if priced and regulated to prioritize short stays -- if they are free, they will be used for all-day parking by employees or residents. For residents, separating the cost of parking from the cost of rent or a mortgage provides an economic benefit to those who choose to own fewer cars. In addition, the revenue generating from putting an accurate value on parking can be used to benefit an entire neighborhood.

For commuters, making the cost of parking part of the decision on how to get to work encourages transit use and other alternatives, reducing traffic congestion. Parking charges have been found to reduce employee vehicle trips, and thus daily parking demand, by between 7 percent and 30 percent

### **Travel Demand Management Ordinance**

*South San Francisco, California*

South San Francisco is one of the few cities in the U.S. to enact a citywide Transportation Demand Management (TDM) ordinance, which allows reduced parking requirements for projects meeting TDM requirements. The ordinance applies to all nonresidential developments that expect to generate 100 or more average daily trips, or to projects seeking a floor area ratio (FAR) bonus. Parking reductions are not fixed, but are subject to case-by-case review and depend on the number and extent of TDM elements.

For example, the brownfield, mixed-use Bay West Cove development, which is located close to transit and bus service, was able to reduce required parking by 10 percent by implementing the following TDM strategies:

- Free parking for carpools and vanpools.
- Late-night taxi service and feeder shuttle service.
- Transit subsidy of \$25 per month for all tenant employees.
- Late-night taxi service and feeder shuttle service.
- Guaranteed ride home program.
- Provision of a transportation coordinator.
- On-site project amenities such as child care, showers and lockers, electric vehicle charging, bicycle storage facilities, and a transit information kiosk.
- Parking charges of at least \$20 per month for employee parking spaces.

Developers can use the savings from reduced parking construction and the income from paid parking to offset or cover the costs of implementing such programs.

*Source: City of South San Francisco, 2003.*

or more, depending on factors such as the level of charges and the availability of alternatives to driving alone. One researcher has calculated that each 1 percent rise in parking fees is accompanied by a 0.3 percent decrease in demand (Pratt, 2000).

Cities and developers are using a variety of pricing strategies to better balance parking demand and supply. They include parking cash-out programs, pricing that prioritizes certain types of trips, residential parking plans, and parking benefit districts.

### **Cash-Out Programs**

Cash-out programs allow employees to choose a transportation benefit, rather than simply accepting the traditional free parking space. Under such programs, employers offer employees the choice of:

- Free or subsidized parking,
- A transit or vanpool subsidy equal to the value of the parking (of which up to \$100 per month is tax-free under current federal law), or
- A taxable payment approximately equal to the value of the parking, essentially cash to commuters who bicycle or walk to work.

Employees who opt for the non-parking subsidies are not eligible to receive free parking from the employer and are responsible for their parking charges on days when they drive to work. The cost savings for employers



associated with cash-out payments depend on the amount of the payments. If the full cash equivalent is provided, this demand reduction program does not reduce the total costs of providing parking. However, employees may accept cash payments lower than the full equivalent of the parking subsidy. If partial cash payments are used, employers face lower overall transportation subsidy costs, and employees still benefit. The programs help end the inequity of providing a free parking space benefit to drivers, while offering nothing to those who choose to arrive via transit, foot, or bicycle.

Cash-out programs are often easier to implement than direct charges, as they are generally more acceptable to employees, particularly when free parking had been the norm. However, their impact on travel behavior is usually lower, due to the administrative burden on employees, inertia in changing travel habits, and the fact that cash-out payments can be a taxable benefit whereas free parking is not.

Cash-out programs provide significant environmental, social, and economic benefits. For example, in response to California's mandatory cash-out requirement, eight firms reported an average 17 percent reduction in the total number of solo drivers (Shoup, 1997a). Thus, another benefit of cash-out programs is a reduction in traffic congestion and associated pollution.

### **Prioritizing Trips**

Parking pricing can be a tool to prioritize some types of trips over others, according to their purpose and duration. It allows managers to cater to certain users, such as short-term shoppers, while discouraging other users, such as commuters, who add to peak-hour congestion and occupy a parking space for an entire day. These pricing strategies allow the overall supply of parking to be minimized, while ensuring spaces are available for critical users. They can also alleviate pressure to provide more parking from retailers and businesses, who may be concerned that lack of parking discourages shoppers. For example:

- Low prices for short-term parking encourages shopping trips, and limiting the duration of parking can also support these high-turnover trips. For example, charging \$0.25 per hour with a two-hour maximum will allow many people to use a single space over the course of a day. The same space priced at \$2.50 for up to ten hours will likely serve a single commuter. The parking revenue might be the same, but the sales for businesses and sales tax for the city will likely be much higher with short-term parking.

#### **Cash-Out Program**

*Santa Monica, California*

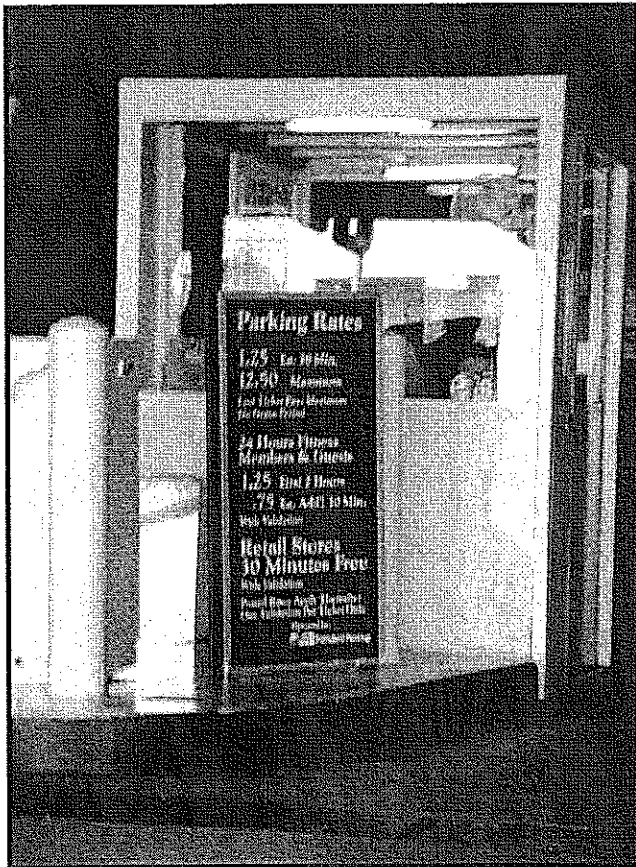
In 1992, California instituted a mandatory cash-out program. The California Health and Safety Code Section 43834 reads, "Parking cash-out program' means an employer-funded program under which an employer offers to provide a cash allowance to an employee equivalent to the parking subsidy that the employer would otherwise pay to provide the employee with a parking space."

The effects of the cash-out program on transportation use in Santa Monica have been significant. A study conducted by Donald Shoup of the UCLA found that for two Santa Monica employers, the share of solo commuters decreased by between 7 and 8 percent once the cash-out program was in place. This reduction in solo commuters is responsible for a decrease in annual commuting of 858 vehicle miles (Shoup, 1997a).

- Parking charges that are levied by the hour or day, with no discounts for monthly parking, remove the incentive to drive every day to “get your money’s worth” from the monthly parking pass.
- Parking charges at transit stations that only apply before a certain time (such as 9:00 am) encourage users to ride transit when it is less crowded, rather than contributing to crowding in the peak.
- Sophisticated new parking meters can charge visitors a different rate than residents or employees with parking permits, preserving parking for regular users while maximizing revenue from occasional users.

### **Residential Parking Pricing**

Parking charges can also be introduced at residential developments, through separating or “unbundling” the cost of parking from rents or sale prices. Rather than being provided with a set number of spaces whether they need them or not, residents can choose how many spaces they wish to purchase or rent. An alternative to direct charges is to provide “rent rebates” or discounts to residents who own fewer vehicles and do not use their allocated parking spaces.



In many urban areas with limited off-street parking, curb parking is reserved for residents through residential parking permit programs. In most cases these programs give residents free or very inexpensive curb parking permits and prohibit anyone else from parking there. However, this can leave many spaces unused during the day when nearby businesses could use extra parking. A few communities, including Aspen Colorado and Tucson Arizona, are experimenting with allowing businesses to buy permits in these areas at very high rates, or are charging hourly parking fees (Shoup, 2005). The revenue generated can be used to benefit the neighborhood, in one version of a parking benefit district, as described below.

### **Parking Benefit Districts**

The revenue from parking can be used to directly benefit the street or the

neighborhood where the money is collected. Parking benefit districts receive the revenue from meters and residential permits within the district. Once administrative costs are covered, all money goes to transportation and neighborhood improvements such as undergrounding of utility wires (Shoup, 1995), regular street and sidewalk cleaning, installation of benches, nice lighting, or other amenities. Parking benefit districts can allow new development to use available on-street and other spaces, while addressing potential capacity problems through market pricing of curb and off-street parking. Earmarking revenue to directly benefit the neighborhood or commercial district helps to generate support for charges from local residents and businesses, who might otherwise resist paying for parking that used to be free. Often, local residents or businesses have a say in how the newly available revenue will be spent.

The most common use of Parking Benefit Districts has been in downtown business districts, usually using parking meter revenue. Cities such as San Diego and Pasadena, California, have implemented such districts. The concept also applies to residential areas. Most residential parking permit programs give residents free or very inexpensive curb parking permits and prohibit anyone else from parking there. However, this can leave many spaces unused during the day when nearby businesses could use extra parking, and neighborhoods could certainly use the revenue that could be generated by charging for street parking.. A few communities, including Aspen Colorado and Tucson Arizona, are experimenting with allowing businesses to buy permits in these areas at very high rates, or are charging hourly parking fees (Shoup, 2005). Furthermore, this concept can be refined based on the neighborhood. For example, a neighborhood adjacent to an institution such as a hospital or university might implement a two-tiered residential permit program. Residents could buy permits at one rate, while excess on-street capacity would be sold at market value to non-residents.



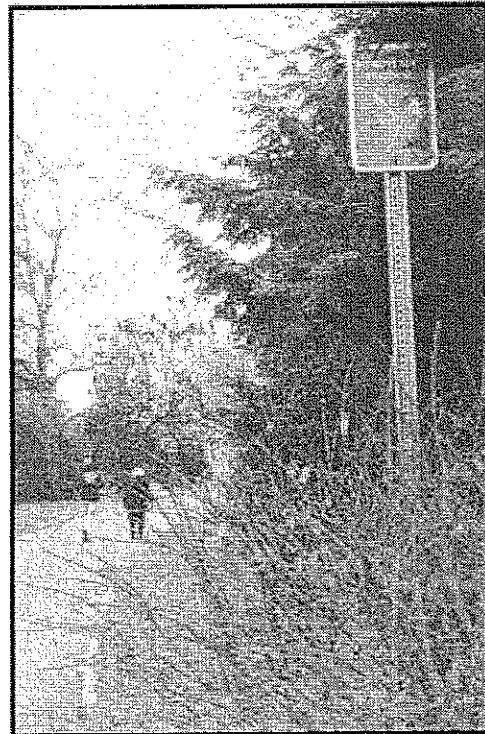


# Case Studies

**T**his section presents case studies that illustrate how specific metropolitan areas have benefited from innovative parking alternatives. Little data has been collected comparing the effectiveness of various parking strategies, and much cost data is proprietary and not available for analysis. Therefore, these examples are presented to illustrate the ways that parking strategies are being used in real-world settings to help communities balance parking and other goals.

- **Portland, Oregon:** Parking policies include maximums, location- and use-specific requirements, shared parking entitlements, car-sharing, and vehicle trip reduction or Transportation Demand Management (TDM) measures. The Hilton Hotel and the Buckman Heights and Buckman Terrace apartments have used these policies to alter their parking mix.
- **Arlington County, Virginia:** Location- and use-specific standards and vehicle trip reduction strategies were used to reduce parking requirements in two developments, the Market Common and the 1801 North Lynn Street commercial development.
- **NASA Research Park, Santa Clara County, California:** A large mixed-use development illustrates vehicle trip reduction strategies
- **The Shoppes of Wilton Manors, Wilton Manors, Florida:** This case illustrates how shared parking arrangements can be used to reduce parking requirements for a mixed-use redevelopment in one of the fastest growing areas of the country.
- **SAFECO Insurance Company Expansion, Redmond, Washington:** SAFECO responded to the state's transportation demand management requirements with an effective vehicle trip reduction program.
- **The D'Orsay Hotel, Long Beach, California:** This case illustrates how a downtown parking management plan that allows shared parking and in lieu parking fees can reduce development costs and put scarce land to productive use.

These six case studies were chosen to highlight the range and depth of parking alternatives, including those created for a specific development basis and those written into code. The case studies include some description of



outcomes, including parking costs and development decisions; support for compact, mixed-use, walkable communities; and other goals. As city and county jurisdictions, Portland and Arlington have innovative approaches to managing their transportation systems, including parking, and the case studies illustrate how these policies affect specific developments.. Arlington County is an example of code-based parking reduction strategies—it encourages reduced parking primarily through lowered minimum requirements. Portland, on the other hand, has a varied toolbox of strategies to offer developers to reduce parking. In other cases, specific developments took the initiative to go against development trends in reducing parking to achieve broader goals, such as the NASA development in California. For the Wilton Manors (Florida) and D’Orsay Hotel (California) cases, the lowered cost associated with parking alternatives was a key element that allowed the projects to be built in a way that satisfied multiple goals of the community and developers. The parking alternatives can also provide directly documentable environmental benefits: SAFECO’s use of transportation management measures and development design, limited air emissions associated with automobile commuting and protected water quality. Parking alternatives used for The Shoppes of Wilton Manors and D’Orsay Hotel developments facilitated these infill projects, thus preventing additional sprawl and the associated air and water quality impacts.

## Innovative Parking Policies: Portland, Oregon

Portland, Oregon, has introduced several innovative planning policies (listed in the box on this page) to balance transportation needs with environmental protection, community design, affordable housing, and other goals. The two developments profiled below are just a sample of the numerous projects that have taken advantage of the city’s parking reduction policies to achieve economic, environmental, and social benefits. Others, in brief, include:

### Innovative Parking Policies

*Portland, Oregon*

Portland has adopted a range of parking policies to promote infill development and balance driving and alternatives to the private car, including:

- No minimum parking requirements in the central city;
- Parking maximums in most neighborhoods, including downtown;
- Transferable parking rights in areas with parking maximums;
- Reductions from typical minimum requirements for car-sharing vehicles;
- Reductions from typical minimum requirements for vehicle trip reduction strategies, such as transit access and bicycle parking;
- Context-specific standards; and
- Provisions for shared parking.

■ **Stadium Station Apartments:** 115 affordable apartments, with parking at 0.6 spaces per unit. Of the 40 units already leased, only one-third of households own automobiles. Despite already low parking ratios, 50 percent of the parking remains unused at full occupancy.

■ **Orenco Station and La Salle Apartments:** Both have parking reductions to 1.8 spaces per unit and provide transit pass allowances to residents. This has achieved a large increase in

transit ridership among occupants.

- Collins Circle, Center Commons, and Russellville Commons Apartments: each is able to serve residents with a combination of transit access, walkability, and fewer than one parking space per unit

## **Hilton Hotel**

The Hilton Executive Tower Hotel and garage, developed by Melvin Mark Companies, is in the heart of the Portland downtown business district, within the Free Transit Zone. Constructed on a block that was the former home to the Greyhound bus terminal, the 20-story, 440,000-square-foot project consists of 312 hotel rooms, conference space, 20,000 square feet of ground-floor retail, and 680 parking spaces. The Hilton Hotel is the owner of the hotel portion of the project, and a Melvin Mark partnership owns the parking structure. Under the Portland zoning code, the maximum allowed parking for the development would have been 380 spaces—312 hotel spaces, plus 68 growth spaces for the retail.

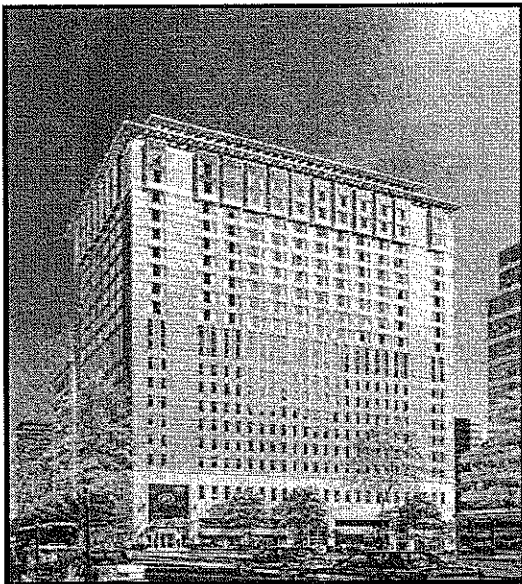
The developers recognized that unmet demand for parking existed in Portland, but not primarily from hotel visitors. They sought to make the new parking available to other users, which would make it more efficiently used (and profitable) than if it were restricted to hotel use. They were able to accommodate needs of the new development and surrounding uses by building 680 spaces — more parking than downtown Portland parking maximums allow. This case study illustrates not only the benefits of shared parking, but that parking maximums combined with transferable parking entitlements can increase the value of real estate and development.

Under the Portland zoning code, the maximum allowed parking for the development would have been 380 spaces—312 hotel spaces, plus 68 growth spaces for the retail. These maximums are lower than both the parking generation rates published by the Institute of Transportation Engineers, and the *minimums* adopted by most cities. The maximums for new office and retail development downtown are one space per 1,000 square feet; for hotels, the maximum is one space per room.

The city views the parking maximum as an “entitlement.” New developments can either build the parking “entitlement” (the maximum parking allowed) or can transfer those spaces to another development, as long as the transfer contract is signed before the foundation is laid. Buildings that choose not to build the parking they are entitled to, or historic buildings constructed before parking became an issue, are granted an entitlement of 0.7 spaces per 1,000 square feet—70 percent of the parking entitled to new construction—which they can transfer to other developments at any time. Transferred rights are generally not sold, but are granted under certain rules that allow the project delivering the parking rights to reserve use of some of the spaces — but at market rates paid to the development that built the parking.

In addition to parking limits, the city also has created three different types of parking spaces applicable to the Hilton Hotel development:

- **Hotel spaces:** By code, these spaces may only be sold to hotel users (guests or visitors) between the hours of 7:00 a.m. and 6:00 p.m., weekdays. If the hotel is in a slow season, or if not all hotel visitors want parking, the remaining parking spaces go unused—a potential financial liability.
- **Growth spaces:** These are the spaces entitled to new development. They have no constraints and can be sold however the developer sees fit.
- **Preservation spaces:** These are spaces generally entitled to older and historic buildings that were constructed without parking. They are more restrictive than growth spaces; if they are not used by building occupants, they can only be sold to other cash users on a daily or hourly basis.



*Courtesy of Melvin Mark Companies*

The Hilton project combined these two policies -- the transferable rights and the categorization of parking spaces -- to build enough spaces to serve both the hotel and surrounding developments. The spaces built include:

- 100 hotel spaces allowed under the zoning code, but restricted to use by hotel visitors (only 30 percent of their entitlement in this category).
- 68 growth spaces allowed for the retail space under the zoning code (100 percent of their entitlement).
- 512 spaces by transferring the parking entitlement from nearby buildings and new projects:
- 200 growth spaces transferred from a concurrent project, the 250,000 -square-foot Pioneer Place mall. The project wanted the parking to attract customers, but did not want to assume development costs or lose retail density on the site to parking.
- 312 preservation spaces transferred from seven buildings in the area. Most of these were office buildings built at a time when parking was not included.

Transferable parking rights made the Hilton/Melvin Mark development financially beneficial to all parties involved. The Hilton project would not have been feasible had its developers not been able to get the additional parking spaces and the flexibility to manage parking. As a major revenue component, the transfer of parking entitlements allowed the developers to secure funding from lenders. Prior to development, they were able to sell 500 monthly parking passes to managers of the buildings from which they had obtained

preservation space rights. Like pre-leasing an office building, this committed revenue helped in obtaining financing. The additional parking and more flexible preservation and growth parking spaces also reduced risk and seasonal fluctuations that the code's "hotel use" parking constraints present. The garage operates with day-to-day averages of 85 to 90 percent occupancy from being able to sell to many different users—a major source of revenue for the project.

Transferable parking entitlements retains the advantages of maximum parking requirements, such as reduced vehicle trips and reduced land area devoted to parking, while creating flexibility and a potential for profit that attracts major developments to the area. In this way, transferable parking entitlements help to reinforce the economic health of the central city, and important goal in the Portland region. Downtown development ensures that the city of Portland retains its property tax base, promotes an active and pedestrian-friendly downtown with multiple amenities, and produces more foot traffic for surrounding businesses. Pioneer Place mall, for example, attracts more customers by having available parking at an adjacent site, without adding the risk of developing parking or losing retail space on their property.

The preservation buildings that transferred their spaces to Melvin Mark Companies also reap significant financial benefit. Typically older, commercial buildings are at a market disadvantage for leasing space because they cannot provide or commit parking for their tenants in office leases. With parking built at the Hilton/Melvin Mark garage and preferential rights to lease to their tenants, the older buildings compete on a more level playing field with newer buildings for prospective tenants.

### Buckman Heights and Buckman Terrace

Located adjacent to Portland's central city Lloyd District and along the edge of a light-industrial area, the site of the Buckman Heights mixed-use development and the Buckman Terrace Apartments was used for decades as a car dealership. Despite a heated real estate market, the 3.7-acre site had been on sale for well over a year, unattractive to most developers. Prendergast & Associates saw an opportunity to build housing on the site, given its prime location—the project is located nine blocks from light rail, within five blocks of four high-frequency bus lines, and surrounded by a growing network of bike lanes and routes. It is also within easy walking distance of jobs in the Lloyd District, the Central Eastside, and downtown. In part because of Portland's parking policies, Prendergast was able to purchase the site in 1997,

**Portland Hilton Executive Tower**

**Profile:**

- Hotel, conference center, retail, parking garage
- 312 hotel rooms
- 20,000 square feet retail
- 680 shared parking spaces – 45% more than typically allowed under parking maximums

**Strategies:**

- Transferable parking entitlements
- Parking maximums
- Shared parking

**Benefits:**

- Increased parking revenue helped attract major downtown development
- New parking benefit provided for older downtown buildings without their own garages
- Shared use reduced impact of extra, empty parking spaces



Courtesy of Prendergast & Associates, Inc.

sell the dealership building to a retail user, and convert the remaining 2.5 acres of vacant parking lots into sites for 274 units of housing—an 8-unit townhouse project, a 144-unit mixed-income apartment building, and a 122-unit apartment building with a small retail space. Creative parking strategies helped to keep development costs low.

**Buckman Heights Apartments and Buckman Terrace**

**Profile:**

- Mixed market-rate and affordable housing with modest retail
- 144 units and 122 units, respectively
- Parking ratios of 0.4 and 0.57 spaces per unit, respectively

**Strategies:**

- Parking maximums
- Use of on-street parking
- Shared off-site parking
- Car-sharing and bicycle parking available
- Parking charges separated from rents

**Benefits:**

- Lowered parking ratios increase affordability: 40% of Buckman Heights units are affordable
- Eliminating excess parking saved Buckman Terrace developers at least \$875,000
- Eliminating excess parking made room for more affordable units
- Residents benefit from affordable transportation options: bicycle facilities are well used

The city of Portland has very low minimum parking requirements in the area. Zoned for general employment, with housing allowed but not actively encouraged, the minimum parking requirements were just 0.5 spaces per unit—already a significant reduction from the typical urban standards of between one and two spaces per apartment. This neighborhood is close to transit and jobs, providing consumers with a choice of different housing types and mobility options.

Both developments have extremely low parking ratios. Buckman Heights has 58 on-site parking spaces for a ratio of 0.4 spaces per unit. Buckman Terrace has 70 spaces at a ratio of 0.57 spaces per unit, with only on-street parking for the retail. These spaces are a mix of carport, surface, and at-grade structure spaces.

The developer was able to both reduce the parking required and keep parking demand lower than supply through the following strategies:

■ **Bicycle Facilities:** Buckman Heights Apartments eliminated 14 required on-site parking spaces by providing 56 secure, covered bicycle parking spaces in addition to the 36 spaces required by code. Portland zoning provision allows four covered, secure bike parking spaces to be substituted for one automobile parking space, up to a maximum of 25 percent of the required parking. The developer also provided lockers, floor pumps, and a workstand in the

bike rooms. The bicycle parking has been so well used that the developer added even more bike parking to Buckman Terrace.

■ **On-street parking:** The Buckman Heights development included restriping a wide street between the two apartment buildings to accommodate angled parking, increasing the supply of on-street spaces as well as creating a more pedestrian-friendly feel through the addition of generous sidewalks, landscaping, and street lamps. Although this did not directly replace the requirement for off-street spaces in this case, it provided a buffer and allowed the development to build as little parking as possible.

■ **Shared off-site parking:** The development made use of on-street parking in the adjacent area where a sewing/assembly plant and a high school were located. The adjacent uses had huge on-street

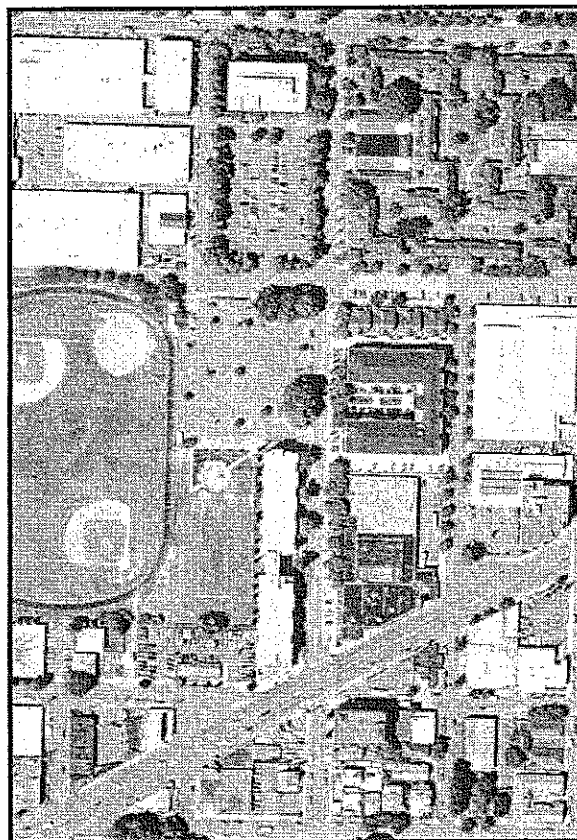
parking demand during the day (when residents are typically at work) but were empty on evenings and weekends (when residents are typically home and parking their cars). This unique setting allowed the developer and the lenders to feel comfortable with the sharply reduced on-site parking ratios.

- **Unbundled Parking Costs:** Paying for parking separately from rent helps keep residents aware of parking costs and allows them to make informed, economic choices about vehicle ownership and other transportation options. Parking at Buckman Heights costs between \$15 and \$30 per month, depending on surface or covered spaces. Buckman Terrace parking (structured) costs \$50 per month.
- **Car Sharing:** FlexCar (originally CarSharing Portland) now has two vehicles at the complex. Since car-sharing was not available at the time of construction, it did not reduce the amount of parking that had to be built, but it now reduces the need for residents to own cars and, consequently, the demand for parking.

Keeping development costs low was particularly important because the project was not eligible for property tax abatements that are given to low-income and central city market-rate housing, because it lies just outside the central city boundary. By cutting costs, partially from parking, the developers were able to secure the funding needed for development.

Considering per space construction costs in Portland of \$5,000 to \$7,000 for surface parking, upwards of \$15,000 for surface structures, and \$25,000 to \$30,000 for below-grade structures, parking reductions in the Buckman developments significantly reduced development costs. Buckman Terrace was constructed with no surplus land, so additional parking would have been forced to go underground. By forgoing the construction of 50 additional spaces, the developers were able to reduce the cost of the apartments with the savings of between \$875,000 and \$1,125,000. For Buckman Heights Apartments, the developers were able to add additional apartments to the project using the money saved from parking, especially helpful for revenue given rent restrictions on the affordable units.

The attention to a walkable environment has given the residents more transportation choices and improved their quality of life, while also making the project marketable. Both developments have been at or near full occupancy (95 to 100 percent leased) since the openings in 1999 and 2000, even outper-



*Courtesy of Pendergast & Associates, Inc.*



forming the soft Portland housing market in recent months. The developments have provided more than 80 new affordable homes. In addition, charging for parking separately from rent benefits households who do not have cars—particularly low-income families. Infill housing also increases the city's tax base.

## Context-Specific Requirements and TDM: Arlington County, Virginia

Arlington County is an urban area of about 26 square miles directly across the Potomac River from Washington, DC. Arlington County has adopted countywide development standards and guidelines, including lower parking ratios, to support future growth of high-density commercial and residential development around Metrorail stations in their two corridors—the Rosslyn-Ballston Corridor and the Jefferson Davis Corridor. Two specific projects are profiled here—a high-density residential development and a commercial development. Both have used the county's context-specific parking requirements and travel demand management program to better match parking supply with demand, making resources available for other community benefits.

### Context-Specific Requirements Arlington, Virginia

#### Commercial Uses:

- Commercial Office Zoning area outside of station areas: one space per 530 square feet.
- Commercial Redevelopment Zone (along Metro Corridor): one space per 580 square feet.
- Rosslyn-Ballston Metro Corridor Development and developments within one-quarter mile of a Metro station: one space per 1,000 square feet.

#### Retail Uses:

- For retail and service-commercial uses within 1,500 feet of a Metro station, no parking is required for the first 5,000 square feet of gross floor area.
- Any square footage above that has the same parking requirements as commercial in the area (either 1:580 square feet or 1:1,000 square feet, depending on its location in the corridor).

#### Residential Uses:

- High-density residential: 1.08 spaces per unit (1:1 + visitor).
- Townhouses: 2.2 per unit (2:1 + visitor).
- Single family homes: one space per house. This ratio assumes space in a driveway or on the street.

Arlington County dictates minimum parking requirements based primarily on distance from Metro stations. Parking requirements for commercial development are particularly transit-sensitive, with the lowest ratios for properties closest to Metro stations. According to Richard Best from the county Public Works Planning Division, if a development is within one-quarter mile of a Metro station, the county is open to allowing development with no new on-site parking, although this is not specifically written in the code.

Every project that goes through the site plan process for development along Metro corridors is required to have a transportation plan, which varies depending on density and use. Further reductions in minimum parking requirements, beyond the location- and use-specific standards, are granted for projects that include robust transportation choices, such as free or discounted transit passes for employees, other transit subsidies, ridesharing, and information on transit.

While not written into code, Arlington also enforces urban design criteria in parking construction. All parking is encouraged to be below ground, or if at surface level, it must be in a structure that is wrapped with occupiable ground floor space, in order to

reduce the impact of the parking on the walkability of the street. There are no codes dictating such design, but a site-plan review process strongly encourages it.

### The Market Common

The Market Common in Clarendon is a mixed-use development with retail and restaurant space, 300 market-rate apartment units on upper floors, and adjacent office space. Located three blocks from two Metro stations along the Rosslyn-Ballston corridor, and in close proximity to dense employment and retail, the area has a variety of uses and urban form that supports walking, transit, and biking as well as driving and parking. Realizing that patrons of retail establishments would be using the parking during the day while residents would mainly need parking at night, developers of the Market Common devised a shared parking strategy.

Under typical suburban parking requirements, the development would have required over 2,000 parking spaces. Under the Arlington County Code, the project would have required 1,504 spaces for the retail, housing, and office space. But by using a shared parking strategy, the development was able to reduce the requirement by 25 percent—to 1,160 spaces. The Market Common is the first recent development approved in the county with no assigned spaces for residential units—all spaces are equally available for all uses.

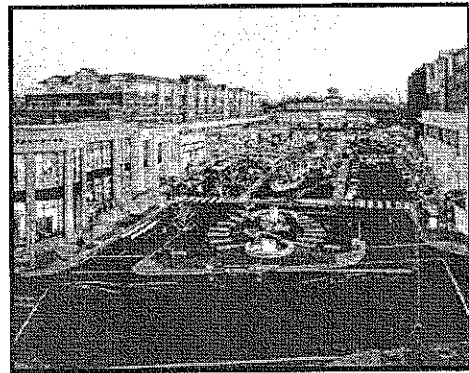
Parking demand is mitigated through several strategies:

- Parking costs are unbundled from rent for residents: \$25 per month for the first car, \$75 to \$100 per month for the second;
- Daily parking is variable for other users, with rates of \$1 to \$4 per hour, with higher rates for longer stays;
- Bicycle parking reduces demand, as does proximity to transit.

Perhaps the parking could have been reduced even more and still met demand. Studies of parking use at Market Common indicate that up to 20 percent of available parking remains unused at peak times. The developer and county agreed to count that surplus parking toward requirements at future phases of this development.



Courtesy of McCaffery Interests



Courtesy of McCaffery Interests

The Market Common	
Profile:	<ul style="list-style-type: none"><li>• 225,000 square feet of retail and restaurant use</li><li>• 300 market-rate apartment units</li><li>• Parking: 25 percent reduction from county code</li></ul>
Strategies:	<ul style="list-style-type: none"><li>• Shared parking</li><li>• Parking costs separated from rents</li><li>• Transit and bicycle facilities</li></ul>
Benefits:	<ul style="list-style-type: none"><li>• Fewer required spaces reduced development costs by an estimated \$16 million</li><li>• Parking paid for only by those who use it</li></ul>

## 1801 North Lynn Street

The 1801 North Lynn Street development is a new commercial building in the Rosslyn Metrorail station area, zoned for parking requirements of one space per 1,000 square feet, dependent upon the choices available to travelers. The zoning in this area permits increases in density and height when the County Board finds that the development offers important community benefits. The 1801 North Lynn Street development has 347,295 square feet of office space, 6,065 square feet of retail, and 386 parking spaces. At typical suburban parking ratios, that amount of development would have been accompanied by roughly three times as many parking spaces. Transportation Demand Management strategies allowed parking to be reduced to one space per 1,000 square feet ratio. The transportation program included the following elements:

### 1801 North Lynn Street

#### Profile:

- Office building with street-level retail
- 348,000 square feet of office space
- 6,000 square feet of retail space
- 386 parking spaces, one-third of typical requirements

#### Strategies:

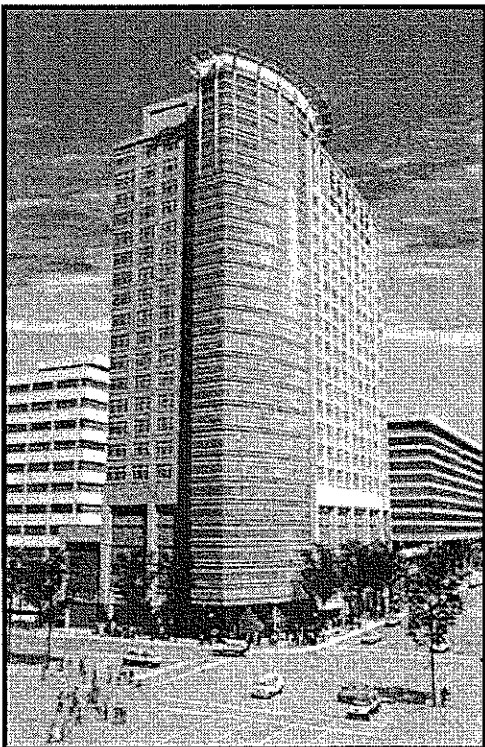
- Extensive TDM program including fare subsidies
- Bicycle, pedestrian, and transit facilities

#### Benefits:

- Employees have a range of commuting choices
- Eliminating unnecessary parking helped make project financially feasible
- Increased tax base from new commercial activity

- Full-time, on-site Employee Transportation Coordinator to manage the program;

- Financial contribution to the Rosslyn Commuter Store;
- Transit fare subsidies for employees;
- Implementation of several ridesharing and parking strategies, including promoting ridesharing, helping commuters find rides, and subsidizing parking for carpools and off-peak commuting; and
- Bike facilities and showers to encourage bicycle commuting.



For workers in this building, the discounted Metro fare, along with walking and biking access to many residential neighborhoods, provides real choices in how to get to work. For shoppers at its retail establishments, newly available on-street parking in front of the stores provides a better option than existed before. The county gets an increased tax base and the vitality of mixed-use development and street-level retail in an area that in the past has not enjoyed off-peak activity.

Financial benefits to the developers of the two Arlington County projects are obvious -- reduced parking requirements sharply reduce construction costs, which in Arlington can mean upwards of \$15,000 per space for structured parking, and up to \$25,000 or more for below-grade spaces. Building less parking is a major part of making the projects financially feasible, in terms of balancing land costs, construction costs, revenue, and

lending. The Market Commons project, for example, saved \$16 million from the 400 forgone parking spaces, without which it would not have been a feasible project.

Arlington has succeeded in promoting high-density, mixed-use developments with reduced parking in its Metrorail corridors. This kind of design promotes walk and bike trips as people can go from home to work and shopping in very short distances. Urban design in both projects pays close attention to pedestrian comfort, by providing usable public space, circulation paths, attractive landscaping, and engaging street-level architecture.

## **Transportation Management for Mixed-Use Development: Santa Clara, California NASA Research Park**

The NASA Ames Research Center (ARC) is a 1,500-acre site of federally owned land that lies between the southwestern edge of the San Francisco Bay and Silicon Valley, in Santa Clara County, California. Part of the site includes Moffet field, a decommissioned military site. Years of planning and community input led to an award-winning plan for a mixed-use development including an emphasis on research and technology firms; Internet-search giant Google recently announced it would build a major campus at the site. Design and construction will continue through at least 2014.

The majority of redevelopment on NASA's land will occur in the NASA Research Park (NRP), a 213-acre parcel on the southwest part of the site. Plans for development include the restoration of existing historical buildings, as well as adding nearly two million square feet of educational, office, research and development, museum, conference center, housing, and retail space. Also being developed as part of the project is 28 acres of a 95-acre parcel on the north side of the site called "The Bay View." This area is slated for predominantly housing uses, in addition to supporting retail, childcare, and other services. The remainder of Bay View will remain as open space and natural habitat.

Because the NASA land is federally owned, it is exempt from city or county codes that dictate parking requirements, as well as other development restrictions. Despite the lack of restrictions, the NRP project sought from the beginning to reduce the impact of traffic on surrounding streets and neighborhoods—with the goal of keeping driving at least 32 percent below the typical rates by Santa Clara County residents.

Had the site been developed using typical minimum parking ratios, it would have needed 7,542 parking spaces. Instead, the TDM plan calls for 5,200 spaces, with parking ratios determined by the actual number of people expected to be on-site.

A TDM plan was developed for the NRP and Bay View, using a range of trip reduction strategies to ensure that parking demand can be accommodated in fewer spaces. The TDM plan will be binding on partners and other tenants at the NRP and Bay View developments, pursuant to the provisions of the environmental permits.

Some of the many innovative TDM strategies to achieve the plan's goals include:

**NASA Research Park and Bay View**

**Profile:**

- Partially redeveloped 1500-acre former military base with significant open space
- 1,120 town home apartments for 3,300 residents
- 810 dormitory-style housing units for 1,560 students
- Renovation of 600,000 square feet of historic buildings
- Addition of more than three million square feet of new housing, office, and retail space
- 5,200 parking spaces, 32 percent less than typical development codes require

**Strategies:**

- Mix uses to reduce vehicle trips
- Bicycle and pedestrian facilities and shuttle bus
- Parking pricing policies
- Specific TDM goals for commuting trips, including 32 percent fewer vehicle trips than area average

**Benefits:**

- Reduced traffic impact on surrounding communities
- Less pavement reduces impact on natural habitat
- Convenient housing and commuting options for residents and employees
- Reducing unnecessary parking saves \$3 million annually

- Supportive site design, including housing, retail, and office space in close proximity; bicycle paths and bike parking; a network of sidewalks and paths;

- On-site employees and students get priority for purchasing on-site homes

- Site-wide shuttle bus program and bus pass;

- Partners, lessees, & tenants are required to pass on the cost of parking or offer parking cash-out;

- Parking fees structured so the less you park, the less you pay: a discount for monthly parking; hourly spaces; low rates for carpoolers

- 75 percent of all spaces shared between land uses.

The TDM plan allows for adjusting the price of parking to balance demand with supply. This flexibility provides revenue for TDM programming while ensuring efficient use of the parking. The TDM program means significant cost savings for developers,

while reducing the environmental impact and improving the pedestrian environment of the future campus.

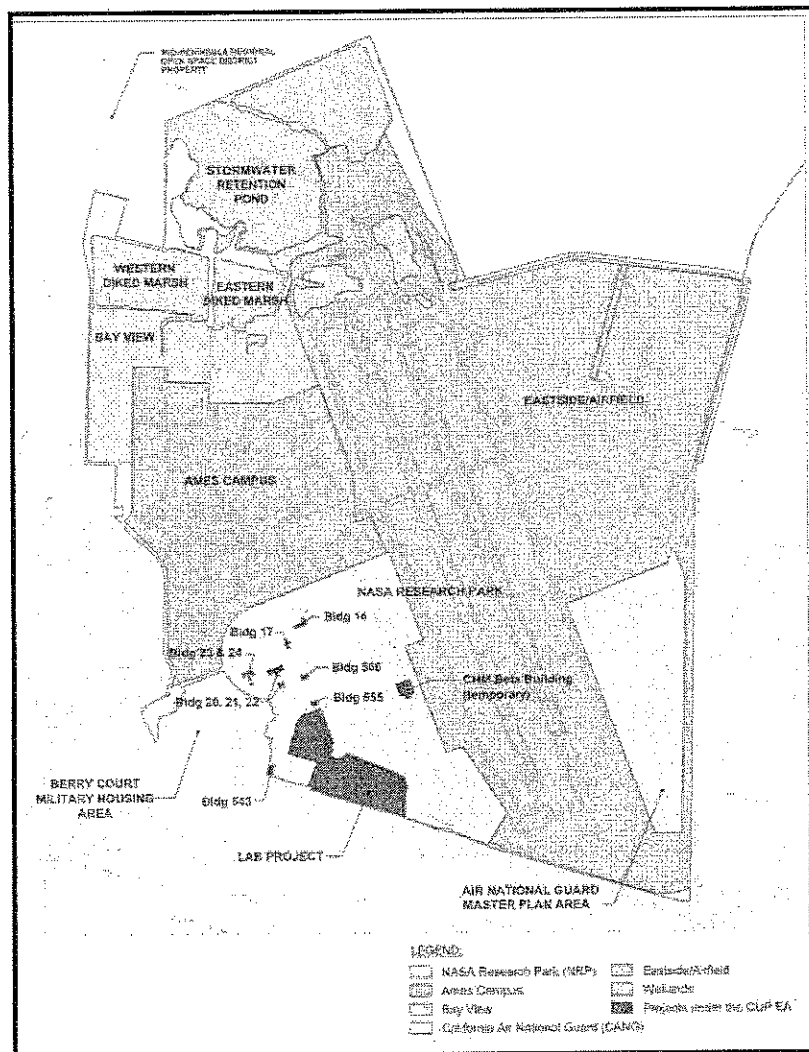
Without the TDM program, the development would have needed an additional 2,342 parking spaces, at a cost of about \$3 million annually. Parking fees cover all costs of providing parking and the TDM program, a benefit to both the developer and surrounding communities: The TDM program requires that those who park pay for the parking supply. Travelers who want to drive can park, while travelers who choose not to drive do not have to pay for it.

The land itself is a brownfield—formerly contaminated by its military use—as well as an environmentally sensitive habitat—home to the burrowing owl, a California species of special concern. The development focuses on remediation, preservation, and environmental sustainability. The development plan

goes a step further to ensure conservation for a sustainable future—it incorporates energy efficiency, water conservation, transportation demand management, and seismic safety. This is a striking change from typical development patterns in the area.

The NRP TDM plan will reduce impervious pavement, an element of development that can damage nearby ecosystems because of reduced habitat, limited rainwater re-absorption, and increased polluted stormwater runoff. Reduced parking in the NRP saves land, which contributes to the project’s 81 acres of preserved land for the endangered burrowing owl.

By combining uses on the property and offering on-site employees and students priority for purchasing homes, the development will not only reduce the need for people to commute from out of the region, but will sharply reduce internal vehicle trips. The development will be home to nearly 5,000 people, at least half of whom will work or study on the campus. These employees will be able to find services on site, instead of having to run errands off site on their lunch breaks. NASA has committed to offering a minimum of 10 percent of the homes on site at prices affordable to its employees. The reduced



parking is not an end in itself. It underscores the emphasis on better urban design and improved walkability, improving the quality of life of residents,

employees, students, and visitors.

## **Reduced Parking Requirements: Wilton Manors, Florida The Shoppes of Wilton Manors**

In the city of Wilton Manors, in Broward County, parking reductions were partly responsible for enabling a financially deteriorating neighborhood shopping center to be redeveloped into a successful mixed-use development, featuring restaurants, art galleries, and other entertainment uses, as well as professional offices. At its peak in the 1960s, the shopping center housed a Grand Union supermarket, a bank, a fast food restaurant, and many other stores. In the 1990s, the shopping center lost several businesses, reducing the tenant occupancy rate to 30 percent.

Southeast Florida, comprising Palm Beach, Broward, and Dade Counties, is one of the fastest growing regions of the United States. Projections for 2015 suggest that the population will reach 6.2 million people, an increase of over 50 percent from 1990. With the growing population and increasing development, fragile ecosystems are being lost and water supplies threatened. Communities and this region are seeking to reverse these trends by developing compact, mixed-use, walkable places. Reducing parking requirements is one element of southeast Florida's move toward smart growth and development.

To accommodate redevelopment of the shopping center and revitalize the area, the city teamed with a private development company, Redevco, creating a public/private partnership to transform the property. Because a host of "big box" retail stores had recently located in outlying areas, this property could not support additional retail stores. Instead, the city and Redevco identified an untapped market niche—entertainment, cultural attractions, and restaurants. To enable these uses, the city created a new zoning overlay district that not only changed zoning requirements to allow arts and entertainment uses, but also exempted the developer from standard parking requirements by allowing shared parking in planned off-site public parking structures. The new zoning district also allowed outside cafes and seating to make the restaurants more inviting and attractive.

Under the city's generic parking requirements, art and entertainment uses would have required 390 new parking spaces, in addition to the existing spaces at the site required for existing retail. Construction of the additional

### **The Shoppes of Wilton Manors**

**Profile:**

- Redevelopment of neighborhood shopping center
- Converted to an entertainment destination
- Eliminated construction of 390 unnecessary parking spaces

**Strategies:**

- Zoning overlay district recognizes lower demand for parking
- Off-site shared parking facilities

**Benefits:**

- Buildings preserved for rental, rather than demolished for parking
- Saved \$1.9 million in construction costs
- Increased property values and city revenues
- Helped inspire nearby redevelopment

390 parking spaces would have cost approximately \$1.9 million and would have also necessitated demolition of existing buildings, further increasing redevelopment costs and eliminating rental income from the lost buildings. Reducing the parking requirements and allowing shared parking reduced the development costs enough to make the redevelopment financially feasible.

The Shoppes of Wilton Manors now boasts full occupancy and rental rates of \$32 per square foot (up from \$8 per square foot). These two complementary factors—increased occupancy and increased rental rates—account for an increase in total annual rental income of \$26 million, or 12 times its former rental income.

In addition to the financial success of the project, the revitalization of the Shoppes of Wilton Manors has provided other benefits to the community. The project has stimulated adjacent economic development. An office building next door that was vacant for 18 months now houses a law firm with 100 employees, many of whom frequent the restaurants and entertainment facilities at the Shoppes of Wilton Manors. Property values in the surrounding area are also improving; rental rates have almost doubled, from \$6 to between \$11 and \$14 per square foot of leased space. The increased property value of the Shoppes of Wilton Manors—increasing by more than 10 times the initial value, from \$226,000 to over \$3.3 million—will add an estimated \$80,000 in property tax revenues to the city. In addition, the other private investments along Wilton Drive have increased city-wide property tax revenues by 10 percent. Storefront and landscaping improvements make the area more attractive. Criminal activity has dropped due to the increased activity and vibrancy of the area. The walkable nature of the town center is enhanced as a result of improved site access. All of these benefits contribute to an improved quality of life for local residents and business people.

Some of the key elements in Wilton Manors' success include:

- The developer's and the city's willingness and commitment to work together;
- The city's flexibility in reducing parking requirements to support different redevelopment uses;
- Substantial cost savings resulting from parking reductions, making the redevelopment financially feasible; and
- Contributing to significant secondary benefits, including increasing the tax base and design improvements, by catalyzing surrounding development.

According to Redevco executive vice president, Debra Sinkle, the project succeeded because of the public/private partnership between the city and Redevco. The city's flexibility on zoning requirements and its commitment to the project created the confidence necessary for private investment.



## TDM Program: Redmond, Washington SAFECO Insurance Company Expansion

The state of Washington's Commute Trip Reduction (CTR) law was passed in 1991 to improve air quality and mitigate traffic congestion. This transportation demand management measure targets the state's largest counties (those with populations greater than 150,000 people), requiring employers with more

than 100 employees to implement programs to reduce single occupancy vehicle (SOV) trips to and from work. Through the state's CTR, employers monitor commuter travel patterns by administering employee surveys, which are written and processed by the state. The CTR established a goal of a 35- percent reduction in trips by 2005 compared to 1993 levels.

The headquarters of SAFECO Insurance Company of America is in Redmond, a suburb of Seattle in King County, one of the nine Washington counties affected by the CTR. SAFECO has responded to the CTR with

an award-winning Transportation Management Plan (TMP) that includes employee transit passes, reserved parking for high occupancy vehicles (HOV), ride matching, vanpooling, and guaranteed rides home for employees at all its offices in the Seattle region.. By providing these services, SAFECO was allowed to build less parking for a recent expansion project below the city of Redmond's maximum levels.

SAFECO has undertaken a large-scale construction project to accommodate anticipated growth at its corporate headquarters in Redmond, adding three buildings (385,000 square feet of office space) and three parking structures (843 parking spaces) for the new office space. To preserve the attractive, park-like setting of the 48-acre campus and to maintain a pedestrian-friendly environment, SAFECO chose to construct all three parking structures underground. These subterranean spaces, while expensive to construct at \$18,000 per space, preserve green space and make it easier to walk around the business park campus. The city of Redmond has maximum parking limits that would allow SAFECO to construct 1,155 spaces. Instead, SAFECO built 843 spaces, resulting in a parking ratio of 2.2 spaces per 1,000 square feet for the new office space. This amounts to a savings, relative to the maximum limits, of 312 parking spaces. Reducing the number of spaces allowed SAFECO to mitigate the higher cost of constructing underground parking, in addition to helping meet design goals.

While these parking reductions were not implemented as cost-cutting measures, the gross cost savings associated with the parking reductions (relative to the maximum limits) amount to \$5.6 million in parking construction costs, or

### King County Metro King County, Washington

- Washington's most populous county, with almost 2 million residents
- Metro transit serves 75 million riders per year, and 5,000 vanpool commuters each day
- Provides TDM support services to employers

about \$491,000 annually.<sup>1</sup>

SAFECO's exemplary TMP reduced parking demand and allowed the company to build fewer parking spaces. SAFECO targets a portion of the savings to the TMP, approximately \$261,000 per year including \$75,400 for transit subsidies. Combining the full cost of transportation demand management at the Redmond campus and the savings from parking reductions, SAFECO annually saves \$230,000 from parking reductions. Given that SAFECO would have incurred some of the costs of transportation demand management at its Redmond campus regardless of the parking reductions, the net savings actually exceed \$230,000. SAFECO's decision to increase the density of its existing property, rather than move to another (likely ex-urban) location, also avoided the cost of procuring additional land.

Under its TMP, SAFECO agrees to maintain the rate of employees driving to work alone at or below 60 percent. Since 1997, SAFECO has kept these trips to between 57 and 59 percent of total commute trips. By comparison, 81 percent of east King County commuters drive alone, and 13 percent carpool (Washington State Department of Transportation 1999). Rather than drive alone, 15 percent of SAFECO employees carpool; 12 percent use van-pool services; 8 percent use public transit; and the remaining 7 percent bicycle, walk, or telecommute.

The company also maintains information on commuter vehicle miles traveled (VMT). On average, SAFECO employees travel between 6.5 and 7 miles one way. Thus, by maintaining an average 58 percent SOV rate for its 1,700 employees, SAFECO averts as many as 4,635 VMT each day, or about 1.2 million miles each year. These VMT figures assume two people per carpool and four people per vanpool. Thus, if the carpools or vanpools transport a greater number of passengers, this reduction in VMT would be greater.

- **Air Quality Benefits:** The environmental benefits associated with this reduction in automobile commute miles are significant. Avoiding almost 1.2 million miles of automobile travel also avoids approximately 27.56 tons of carbon monoxide, 3.85 tons of nitrogen oxides, and 2.20 tons of hydrocarbons each year.<sup>2</sup>
- **Water Quality Benefits:** Another significant, yet less quantifiable, environmental benefit of reduced parking is the preservation of pervious surfaces to absorb rainfall and prevent polluted runoff. Increasing the amount of impervious areas through paving can alter

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<sup>1</sup> This annual amount is only associated with construction costs and assumes constant payments, an interest rate of 7.25 percent, and a 25-year payment period per discussion with SAFECO transportation manager.

<sup>2</sup> Calculated using average emissions factors from EPA's Office of Mobile Sources' *Compilation of Air Pollution Emissions Factors, Volume II: Mobile Sources: (AP-42)*, which provides the following emissions factors: 21.05 grams of carbon monoxide emitted per VMT, 2.97 grams of nitrogen oxides emitted per VMT, and 1.71 grams of hydrocarbons emitted per VMT.

the area's hydrologic system and cause runoff mixed with oil and other contaminants to pollute receiving streams, rivers, lakes, and estuaries. With approximately 40 inches of precipitation each year and many fishable streams, the King County ecosystem is especially susceptible to polluted runoff. An additional 312 parking spaces in above-ground lots would mean another 100,000 square feet of impervious surfaces.

Several key factors contributed to the success of SAFECO's program.

<b>SAFECO Insurance Company</b>	
<b>Profile:</b>	<ul style="list-style-type: none"><li>• Expanded office park by 385,000 square feet</li><li>• 843 underground parking spaces, 27 percent less than typical requirement</li></ul>
<b>Strategy:</b>	<ul style="list-style-type: none"><li>• TDM plan including vanpools, transit passes, guaranteed rides home</li></ul>
<b>Benefits:</b>	<ul style="list-style-type: none"><li>• Eliminating unnecessary parking saves \$230,000 annually</li><li>• Employees avoid commuting costs and receive transit benefits</li><li>• Employees drive about 1.2 million miles less per year</li><li>• Less driving avoids about 33 tons of pollutants per year</li><li>• Reduced pavement for parking leads to less storm water runoff</li></ul>

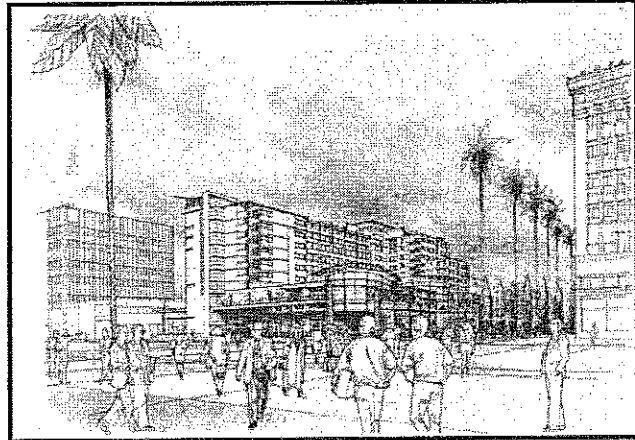
- The city of Redmond was flexible and cooperative in allowing SAFECO to increase density on the existing property.
- SAFECO has an environmentally responsible corporate ethic of reducing parking below the maximum limits and staying in Redmond rather than relocating.
- Frequent and reliable public transit through King County Metro enables SAFECO employees to use alternative modes of transportation even when commuting from other towns in the county.
- SAFECO did not require outside financing. SAFECO's transportation management director believes that, had the project required outside funding, lenders might have resisted making loans unless more parking was provided in the development plan.

## **Shared Parking and In-Lieu Fees: Long Beach, California Embassy Suites at the D'Orsay Promenade**

The city of Long Beach, California, recognizes that creating high-quality downtown development requires balancing the costs and supply of parking with other community goals, including economic development and walkability. In its Downtown Parking Management Plan, the city's redevelopment agency promotes small- and large-scale urban development by allowing for shared parking and in-lieu parking fees. The types of development projects eligible for these parking alternatives include non-residential new construction on lots less than 22,500 square feet, additions or rehabilitation to existing build-

ings, and renovation of historic landmark buildings.

The four-star Embassy Suites at the D’Orsey Promenade, which was proposed to the city in 1998, provides an example of how cities can use parking reductions to facilitate redevelopment. The proposed D’Orsay Hotel included a 162-room boutique hotel with 35,000 square feet of retail space. The property, on a three-block pedestrian walkway in downtown Long Beach was previously a surface parking lot.



Other development proposals for this property had been made to the city, but fell through in part due to the financial burden imposed by the city’s minimum parking requirements. They would have required the developer to construct one parking space per hotel room and four spaces per 1,000 square feet of gross floor area (GFA) of retail space, totaling 302 spaces. With construction costs of \$16,000 per parking space, the parking costs would have totaled \$4.83 million, making the project financially infeasible.

The developer worked with the city, which conducted a traffic study to assess parking demand at other Long Beach downtown hotels. The city’s planning department determined that this mixed-use hotel and retail development did not require the minimum number of parking spaces and modified the requirements in part by allowing the hotel and retail to share the available

**Modified Parking Requirements for the D’Orsay Hotel**

	Requirement	Gross Floor Area (GFA)	# of Spaces Required	Cost per Space	Total Cost (millions)
<b>Generic Requirements</b>					
Retail	4 spaces/1,000 square feet GFA	35,000 square feet	140	\$16,000	\$2.24
Hotel	1 space/room	162 rooms	162	\$16,000	\$2.59
<b>Total</b>	--	--	<b>302</b>		<b>\$4.83</b>
<b>Revised Requirements</b>					
Retail	3 spaces/1,000 square feet GFA	35,000 square feet	105	\$16,000	\$1.68
Hotel	0.70 spaces/room	162 rooms	113	\$16,000	\$1.81
<b>Total</b>	--	--	<b>218</b>		<b>\$3.49</b>
<b>Revised Requirements and In-Lieu Fees</b>					
Retail & Hotel On-Site	N/A	N/A	162	\$16,000	\$2.59
Retail & Hotel Off-Site	N/A	N/A	56	\$3,000	\$0.168
<b>Total</b>	--	--	<b>218</b>		<b>\$2.76</b>
<b>(With In-Lieu Fees)</b>					

spaces. The plan reduced the retail parking space required to three spaces per 1,000 square feet. The hotel's valet parking system allowed the reduction of parking requirements for the hotel space, to 113 spaces for the 162 rooms. These modifications reduced the number of required spaces by 84.

However, parking construction costs still made the project financially infeasible. Even with the revised requirements, the 218 parking spaces for this project would cost \$3.49 million to build. Upholding its mission to encourage urban revitalization, the city of Long Beach Redevelopment Bureau agreed to further adjust the parking requirements by charging in-lieu fees in places of 56 of the required spaces. The in-lieu fee was \$3,000 per parking space plus an additional \$50 per space per month to cover parking operating and maintenance expenditures. The city is obligated to provide those parking spaces near the hotel.

### D'Orsay Hotel

**Profile:**

- Boutique hotel with retail space on former downtown parking lot
- 162 parking spaces, 47 percent less than typical requirement

**Strategy:**

- Parking study to assess market demand
- Shared parking
- In-lieu fees to provide off-site parking

**Benefits:**

- Eliminating unnecessary parking saved \$2 million in construction costs, making project financially feasible
- Provides new shopping and work opportunities downtown
- Adds \$300,000 in new tax revenues annually, to be used for further revitalization projects

As shown in the accompanying table, the revised parking requirements decreased the developer's parking construction costs by over \$2 million, with \$730,000 of the savings coming from the in-lieu fee arrangement. This reduction made the entire project financially feasible. These cost savings significantly improved the projected financial net returns for the proposed project and ultimately facilitated revitalization of the surrounding area.

The hotel is expected to generate approximately \$300,000 annually in additional property tax revenues for the city. Because this property is in an economically troubled area qualified to receive special assistance as a "California Redevelopment Project Area," the property tax revenue generated from the project will be directed back into the area for further redevelopment and infrastructure improvements. In addition, the state will receive revenues from California's 8.25 percent sales tax, and the city will receive revenues from the 10 percent hotel tax. The D'Orsay Hotel will give Long Beach residents an active and pedestrian friendly downtown with multiple amenities. Infill redevelopment like the D'Orsay Hotel and other projects may help to reduce development pressures on outlying areas and encourage additional redevelopment.

This successful redevelopment was made possible by several elements:

This successful redevelopment was made possible by several elements:

- The city of Long Beach's flexibility and recognition that parking is expensive and consumes valuable land. This enabled the developer to negotiate the reduced parking requirements and in-lieu fees that made the project feasible.
- Combining two types of innovative parking strategies (shared parking and in-lieu fees). This was necessary to make the development

project financially feasible.

- Conducting a development-specific traffic study to estimate the number of parking spaces needed for development. The study of other downtown Long Beach hotels showed that applying the city's parking standards would have resulted in an excess supply of parking at the D'Orsay Hotel.

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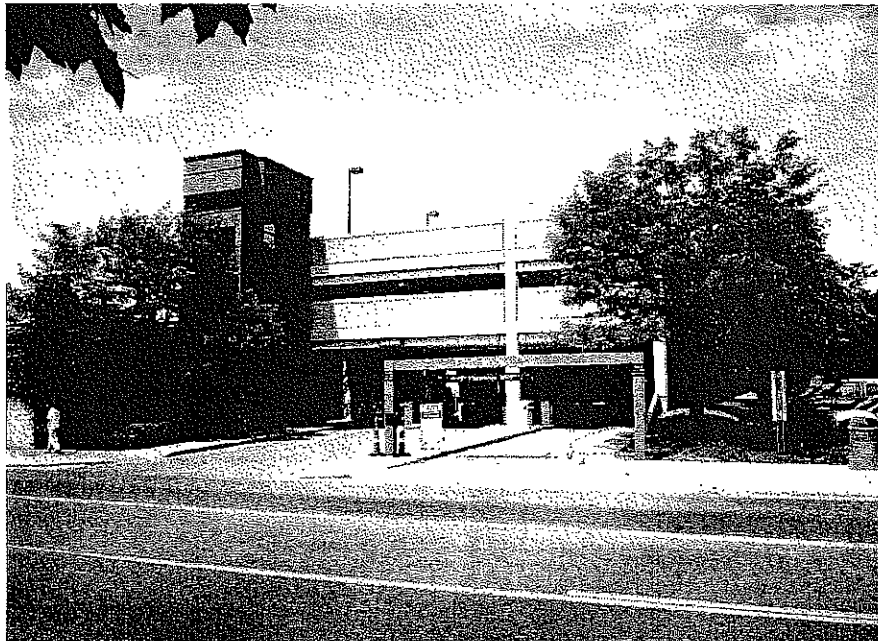
January 2006

# CONDITION ASSESSMENT REPORT

for the

## LAKE & FOREST PARKING GARAGE

Oak Park, Illinois



Prepared for:

**The Village of Oak Park**  
Oak Park, Illinois

Submitted by:

**Desman Associates**  
Chicago, Illinois

September 2002

September 19, 2002

Mr. Osvaldo Rodriguez  
Building Projects Manager  
Village of Oak Park  
Village Hall  
123 Madison Street  
Oak Park, Illinois 60302-4272

**Re: Lake & Forest Parking Garage  
Condition Assessment Report**

Dear Mr. Rodriguez:

At the request of The Village of Oak Park, Desman Associates completed a condition survey on the Lake & Forest Parking Garage in accordance with our proposal dated April 19, 2002. The evaluation consisted of a visual review, a comprehensive sounding evaluation to detect loose or de-bonded concrete on the floor slab, photographic documentation of our findings, and numerous field and laboratory tests to determine different properties of the existing concrete. This letter report is intended to address our findings on the current structural condition and develop repair recommendations and estimated cost to maintain a safe and reliable structure.

**Summary**

In summary, the overall condition of the structure appears to be "fair to poor" on a scale of "excellent-good-fair-poor." This conclusion is based on the extensive deterioration noted to several key structural members including single tees, spandrel beams, columns, and concrete topping. The deterioration has been caused by the structure's severe exposure to the weather as well as the structure's lack of protective treatments designed



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to safeguard the structure from the damaging effects of moisture, freeze-thaw cycles, and chloride ions. We believe that extensive repair of the concrete topping and other structural components of the garage will be necessary in order to extend the remaining service life by a significant time period in order to justify the cost of repairs.

Three options have been developed to address the needs for this property. Two of the programs developed include repair and protection of the existing structure in its current configuration. The third program includes demolition of the existing structure and replacement with a new structure. Program I is based on repairing the deteriorated portions of the concrete topping and other elements and applying a limited protection treatment consisting of penetrating sealer to previously uncoated areas as well as a waterproofing membrane system to a portion of the second level over the Visitor Center. As shown in Table 1, the base construction cost of this program is \$643,000. Program II includes similar repairs to structural elements, replacement of more significant portions of the concrete topping and application of a traffic bearing membrane system as a comprehensive means of surface protection. Program II carries a base cost of \$1,040,000 for its implementation. See Table 2. Both program costs are based on normal construction phasing and completion over a period not to exceed two years.

Program III would be to demolish the existing parking structure, and then construct a new deck in its place of the same approximate parking capacity. We believe that the most practical replacement of this deck will consist of an open air parking deck, approximately 190 feet long by 120 feet wide. It will contain about 380 spaces on 5 parking levels with a total building square footage of approximately 115,000 sf. This deck will front on Forest Avenue with secondary access off of Lake Street. The façade element of the new structure will consist of a combination of brick-clad precast panels and architectural

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precast. As shown in Table 3, the estimated base cost to demolish the existing structure and replace it with a new parking structure would be approximately \$5,305,000.

Many of the durability characteristics of the existing concrete do not meet values as currently given by The American Concrete Institute, ACI. Therefore, the concrete deterioration over time is expected to worsen. From a long-term durability and life cycle standpoint, we believe Program II is the preferred choice since it provides a higher and more positive degree of protection against leakage and future deterioration beyond a 10 to 15 year time period. This approach also produces a much more attractive appearance to the parking facility. Program I may be desired if a 5 to 10 year remaining service life solution is desired. Program III would be a good option if the Village would desire a new structure which we would expect to last forty-plus years, provided general maintenance and annual inspections were performed.

Regardless of what option is chosen, there are several areas in the garage that we feel need immediate attention. Depending on the amount of time elapsed before a program is chosen and conducted, we would recommend that temporary shoring be installed in some locations for the safety of the garage's on-going operations.

### **Background and General Description**

The Lake & Forest Parking Structure is an L-shaped facility with entrance lanes located on both Lake and Forest Street, while the sole exit is located on Lake Street. The facility operates as a self-park garage with one exit lane for key card customers and one exit lane with a cashier booth for cash customers. The structure provides parking for daily customers of businesses as well as local monthly users. The garage was constructed around 1975 and has a parking capacity of 340 vehicles.

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The structure is a four level facility consisting of a concrete slab on grade and three structurally supported levels. The structural system for the parking facility consists of precast, prestressed single tee floor members with a concrete topping drive surface. The concrete topping is three to four inches thick. The single tee floor members are supported by precast columns in the center of the structure, while ledger beams spanning between precast columns support the single tees at the perimeter of the structure. There are three expansion joints located at the east end of the garage separating the south extension of the garage from the larger portion of the structure.

There are two sets of stairs serving the parking garage. The stair and elevator tower on the west side of the structure provides access to Forest Street, while the stair tower on the south side of the structure provides access to Lake Street. The structural system for the stairs consists of steel framing with cast in place concrete treads and risers. There is a storage area located in the center of the garage on the first level.

The structure is classified as "open" waiving the need for a sprinkler system and mechanical ventilation.

### **Parking Garage Deterioration & Restoration – An Overview**

Concrete is a stone-like material created by placing a carefully proportioned mixture of cement, sand and gravel or other aggregate, and water in forms of the shape and dimensions of the desired structure, and allowing it to harden. Concrete has existed and has been used in various ways for thousands of years, probably beginning in Egyptian Antiquity and is currently used as a building material in every country. The advantages of this building material include its high fire and weather resistance, local availability at low cost, and high compressive strength. On the other hand, it is a relatively brittle

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material whose tensile strength is low compared to its compressive strength. Since the late 19<sup>th</sup> century and throughout the 20<sup>th</sup> century, steel bars have been used to reinforce concrete members where the low tensile strength would otherwise limit load-carrying capacity. Under normal environmental conditions, steel reinforcing bars embedded in concrete do not corrode. A protective film of iron oxide is formed on the surface of the steel when it is encased in concrete. The natural alkalinity (pH value of approximately 13.2 or higher) associated with the hydration of the Portland cement in the concrete is usually sufficient to keep this protective film stable.

The service environment of parking structures is more severe than most other buildings and is more like that of highway bridges. In many cases, these structures are exposed to seasonal and daily ambient temperature variations. The associated thermal volume changes can cause cracking of the slabs, beams, columns, and walls. Moisture and oxygen can enter the concrete through these cracks and initiate the corrosion process. With time, the volume increase associated with corrosion formation will generate enough force to delaminate the concrete cover over the reinforcing steel or other embedded metals.

With the widespread use of salt deicing programs for our national highways, the condition of our bridge decks, parking garages and other reinforced concrete structures directly exposed to these elements, began to deteriorate. The relationship between the deterioration and the use of deicing salts was most evident by the extent of deterioration found in the "snow belt" states. With the development of this deterioration, programs were initiated to study the cause and effect of the problem so that repair procedures and preventive maintenance could be instituted.

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Research during this period confirmed that corrosion of the embedded metals was the primary cause of the structural deterioration. It was further determined that the presence of chlorides in the concrete, from both external and internal sources, greatly accelerated the development of the corrosion process. External sources of chlorides mainly consist of deicing salts that may be applied directly to the slabs or carried into the garage by vehicles. Internal sources could consist of calcium chloride admixtures to the concrete, used in winter months to speed the temperature sensitive curing of the concrete mix.

Repair programs began to consider that the only method to stop subsequent corrosion process deterioration was one in which all concrete containing threshold values of chlorides was removed, and chlorides and moisture were further prevented from entering the new concrete. However, removal of all concrete containing significant amounts of chlorides is seldom a practical solution.

A normal assumption made during the condition evaluation is that the structure was adequately designed and constructed in accordance with that design. As stated by the ACI (American Concrete Institute) Committee 362 in their *State of the Art Report on Parking Structures* issued in 1985 (and reaffirmed in 1995)... "Repairing an existing deteriorated structure involves many unknowns, uncertainties and risks. Especially with regard to repair of deicer caused corrosion damage, the process is considered an extension of the useful life of the deteriorated structure. It is not equivalent to building a new structure with current technology." Therefore, in the development of alternative repair programs within this report, contingency funds have been anticipated and included in the probable construction costs to account for concealed, unknown, or unanticipated conditions that may be encountered.

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The successful extension of the service life of the structure will also depend upon the degree of continuing maintenance provided after a major repair program has been completed. In most cases, some continuing deterioration can be expected to occur and funds should be set aside to address this requirement in future years.

### **Findings and Recommendations**

On a scale of "excellent-good-fair-poor," it appears that the structure is currently in "fair to poor" structural condition. Based on our review, many of the primary structural concrete members display signs of delamination, spalling, or deterioration at this time. The majority of the deterioration was noted to be on the concrete topping over the single tee sections. It is not uncommon for these characteristics to develop over time, due to the harsh exposure conditions that a parking garage floor slab can experience. However, with implementation of a repair and preventative maintenance program, we believe that the service life of this structure can be extended a significant number of years (ranging from 5 to 7 or 15 or more years.)

During our field survey a complete chain drag was performed on the top surface of the concrete topping. Several areas of the concrete topping were found to be cracking, spalling, or scaling. (See photos 3 through 6.) Overall, it does appear that the topping is generally well bonded to the precast single tee members. The concrete delamination and scaling on the top surface of the slab is most likely due to freeze-thaw cycles that occur during the winter months. During our petrographic examination, the water cement ratio was found to be in the range of 0.45. (See Appendix B.) These findings are based on the test results of three core samples, which we believe to be representative of the concrete topping throughout the garage. By current industry standards, water-cement ratios for a

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parking structure should not exceed 0.40. Ratios above 0.40 produce more permeable concrete that can be more susceptible to the effects of water and chloride penetration.

Likewise, parking structures are susceptible to freeze-thaw deterioration if the concrete is critically saturated due to ponding or poor drainage. It was noted during our inspection that several areas of the structure had ponding water. The most common type of surface deterioration due to the ponding water is scaling. (See photos 5 and 6.) Scaling is characterized by progressive deterioration which can retain water and contribute to deeper and more extensive deterioration in the future.

Chloride analysis was performed on ten cores that were taken during the field survey. The chloride content was measured at depths of 1 inch and 2 inches from the top of the concrete cores. The chloride content was found to be extremely high (ranging from 0.73% to 7.04% by weight of cement) in the samples that were taken. Based on industry standards today (ACI 318) the corrosion threshold of steel is 0.15% by weight of cement. High chloride levels lead to corrosion of reinforcing steel and eventual deterioration to the concrete. Since the concrete topping is relatively lightly reinforced with welded wire mesh, extensive corrosion has not occurred. However, if these chlorides proceed to penetrate into the single tee sections and are able to initiate corrosion of the prestressing strands, the single tee beams may eventually require more extensive repair efforts in order to maintain their structural integrity.

In order to minimize expected, future repair costs, Desman Associates has provided two different programs to repair the concrete topping. The first program offers the option of spot patching the concrete topping where the deteriorated concrete is located and then applying a penetrating sealer to the concrete surface. This will provide a limited degree of protection to the single tee members throughout the whole garage, but it would be

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expected that a percentage of remaining areas of the concrete topping and some of the tee members would have to be repaired in the next three to ten year period should the Village elect to further extend the service life of the structure.

In addition to the concrete topping deterioration, it was noted that the second level above the Visitor Center was covered with a waterproofing membrane system. The waterproofing system is not functioning correctly and water leakage has occurred into the Visitor Center below. In order to alleviate the leak, a temporary asphalt patch was placed in the southwest corner of the structure. (See photo 7.) As part of program I, the membrane and asphalt patch will be removed, the concrete below the waterproofing system will be repaired, and a new waterproofing membrane will be installed.

The second program would be to replace a more significant portion of the concrete topping and then apply a waterproofing membrane system throughout the supported slabs. This option would provide a better level of protection to the single tee members. It is important to protect the single tees so that the structural integrity of the garage remains intact. We would then expect that general maintenance to the membrane and limited repair to the concrete topping would be required over the next ten to fifteen years. The expected life of the waterproofing membrane system is approximately twelve to fifteen years, therefore, at that time a new application would be required if the Village desired to further extend the service life.

Another area of concern in the structure was the ledger beams. It was noted that several of the ledger beams were in "poor" condition. Several beam locations throughout the structure display a fair amount of concrete spalling or delamination. (See photos 17,18 and 21,22.) We believe that much of the deterioration to the beams is caused by a combination of moisture and chloride induced corrosion of the steel. The majority of the



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moisture has been introduced to the beams due to the failure in the joint between the single tees and the joints located around the perimeter of the parking structure. (See photos 19 and 20.) Several ledger beam spalls occur at tee bearing support locations. (See photos 21 and 22.) If left unattended, it may impact the structural integrity of the structure. Therefore, we recommend that repairs be completed at these locations in a timely manner.

As stated previously, the joints between the single tee members and around the perimeter of the structure are another area of concern observed during the field survey. The joints are showing signs of deterioration on all levels of the garage. Several spalls and cracks have developed below the joints due to water leaking between the tees. (See photos 9, 10 and 13, 14.) It is important that the leakage be stopped in order that long-term corrosion damage to the beams below is prevented. Therefore, we recommend that the caulking be removed and replaced in order to stop the active leaks.

There are several areas located on all levels of the garage where concrete spalling of the columns and corbels was detected. A number of these spalls have occurred in the columns located at the perimeter of the garage. The spalling is most likely due to corrosion of embedded reinforcing steel, which is attributed to the ingress of moisture and chlorides. These factors are introduced to the columns and corbels through the leaking joints from above. (See photos 23 through 26.) We recommend that all the deteriorated concrete areas should be removed and new concrete and reinforcing steel should be replaced as needed.

The expansion joints located on the supported levels and between the supported level and slab-on-grade was another area of concern observed during the field survey. (See photos 27 and 28.) The expansion joints are showing signs of leaking and deterioration on all

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levels of the garage. It is important that the leakage be stopped in order to prevent long-term corrosion damage to the beams below. Therefore, we recommend full replacement of the expansion joints at all levels of the garage.

There are a few areas located on all levels of the garage where concrete spalling of the parapet walls and curbs were detected. A number of these spalls were noted in the curbs located around the connection to the concrete topping. Most likely the deterioration is due to the corrosion of the metal connection at each location. (See photo 4.) Likewise, a few of the parapet walls located on various levels of the garage exhibit concrete spalling and delamination. We recommend the deteriorated areas should be removed and replaced with new concrete.

The lower level of the structure is a slab continuously supported on grade. There are areas in the slab where cracks have developed. However, since the condition of the slab has minimal effects on the overall structural integrity of the facility, we do not believe slab repairs are needed at this time.

The stair and elevator towers of the garage appear to be in "good" condition at this time. During our survey we observed a few locations where concrete spalling or delamination was visible. A few of the spalls were located in front of the elevator doors and present a potential tripping hazard to users at the elevator. The elevators were observed to be functioning properly and we would expect that with general maintenance they should continue to function for the next several years. The paint on the railings and at a few doorframe locations was noted to be peeling. We recommend removal and replacement of all deteriorated concrete in the stairwells and that all the railings and some of the doorframes are repainted.

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The existing electrical fixtures appear to be in good overall condition. The exposed electrical conduit and several junction boxes were observed to be rusting. (See photos 17 & 18.) It is suggested that the rusted equipment and other areas where structural work may affect the lighting be removed and replaced.

The storm piping and floor drains in the garage are generally in fair condition. However, it was noted during our survey that a few floor drains were clogged and some of the piping was observed to be rusting throughout the garage. We also observed several areas where water ponding was occurring after a hard rain. We would recommend that the drains be cleaned, pipes be replaced as necessary, and that new drains be installed as required.

During our survey we also observed the operation of the revenue control equipment. At this time the equipment appears to be operating correctly.

Along with the other repairs stated previously, a few miscellaneous items are recommended for repair in the parking structure. One item that needs to be addressed are the weld connections between the single tees and the precast connections throughout the structure. It is recommended that all weld and precast connections be repaired as necessary. Another item that was noticed while conducting our survey was the block wall at the northwest side of the structure. A few of the blocks are either broken or cracked, therefore, we would recommend that the block wall be repaired at this time.

### Qualifications

Desman Associates was retained to perform a condition assessment of the Lake & Forest Parking Garage. The conclusions, recommendations and opinion of costs presented in

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ASSOCIATES

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this report are based on discussions with personnel familiar with the property, our field observations and our experience on similar projects.

It was not the intent of this survey to perform an exhaustive study to locate every existing defect. Observations were made by trained professionals, but there may be defects at the facility that were not readily accessible, not visible or which were inadvertently overlooked. Other problems may develop with time that were not evident at the time of this survey.

Opinions of cost for repairs are approximations only and should not be interpreted as bids or offers to perform work. Actual costs can be affected by the extents of the work done as one project, the quality of contractors used, the quality of materials chosen, and specific work conditions. These conditions are based on design criteria, which will not be known at the time of this report. Any opinions of cost originate from published data, historical project experience and/or conceptual estimated from contractors, as appropriate. More detailed proposals or bids should be obtained for actual construction budgets.

If there are questions regarding this report or if we can be of further assistance, please feel free to contact us.

Sincerely,

**DESMAN ASSOCIATES**  
A Division of Desman, Inc.

*Robert Tober* <sup>PE</sup>

Robert Tober, PE  
Senior Associate

*Brandon Zerilla*

Brandon Zerilla  
Project Engineer

**TABLE 1**

**LAKE & FOREST PARKING GARAGE**  
**Oak Park, IL**  
Probable Construction Cost

COMPREHENSIVE REPAIR/PREVENTIVE MAINTENANCE PROGRAM I

ITEM NO.	DESCRIPTION	COST
1	Mobilization, Supervision, and General conditions	\$10,000
2	Remove and Replace Delaminated/Spalled Concrete Topping	\$189,000
3	Shallow Depth Concrete Repair	\$20,000
4	Beam/Overhead Concrete Repair	\$95,000
5	Parapet/Column Concrete Repair	\$32,000
6	Remove and Replace Expansion Joints	\$16,000
7	Remove and Recaulk Joints in Topping	\$46,000
8	Application of Waterproofing Membrane on Second Level	\$20,000
9	Application of Penetrating Sealer on Remaining Supported Slab Surfaces	\$37,000
10	Allowance for Precast Connection Repairs	\$25,000
11	Allowance for Electrical and Plumbing Work	\$25,000
12	Allowance for Engineering/Testing Fees	\$45,000
13	Miscellaneous Repairs: Repair stair components, block wall repair,	\$25,000
	dust control, ongoing and final clean-up	
	Subtotal	\$585,000
	Contingency (10%)	\$58,000
	<b>TOTAL</b>	<b>\$643,000</b>

Note:

1. The preceding repair costs are based on the award of one contract, construction start in 2003 and completion of the project within the next 2 years. The parking facility will remain operational on a reduced capacity basis. If the work is phased over more than 2 years, some increase in costs is probable.
2. The above estimated costs are based on expected 2003 prices.
3. The preceding opinion of construction costs does not include engineering, construction material testing or other "soft" costs.

**TABLE 2**

**LAKE & FOREST PARKING GARAGE**  
**Oak Park, IL**  
Probable Construction Cost

COMPREHENSIVE REPAIR/PREVENTIVE MAINTENANCE PROGRAM II

ITEM NO.	DESCRIPTION	COST
1	Mobilization, Supervision, and General conditions	\$10,000
2	Remove and Replace Delaminated/Spalled/Chloride Contaminated Concrete Topping	\$336,000
3	Beam/Overhead Concrete Repair	\$95,000
4	Parapet/Column Concrete Repair	\$32,000
5	Remove and Replace Expansion Joints	\$16,000
6	Remove and Recaulk Joints in Topping	\$41,000
7	Application of Waterproofing Membrane	\$241,000
8	Allowance for Precast Connection Repairs	\$25,000
9	Allowance for Electrical and Plumbing Work	\$50,000
10	Allowance for Engineering/Testing Fees	\$75,000
11	Miscellaneous Repairs: Repair stair components, block wall repair, dust control, ongoing and final clean-up	\$25,000
	Subtotal	\$946,000
	Contingency (10%)	\$94,000
	<b>TOTAL</b>	<b>\$1,040,000</b>

Note:

- The preceding repair costs are based on the award of one contract, construction start in 2003 and completion of the project within the next 2 years. The parking facility will remain operational on a reduced capacity basis. If the work is phased over more than 2 years, some increase in costs is probable.
- The above estimated costs are based on expected 2003 prices.
- The preceding opinion of construction costs does not include engineering, construction material testing or other "soft" costs.

Mr. Osvaldo Rodriguez  
Lake & Forest Parking Garage

9/19/2002  
Page 16

**TABLE 3**

**LAKE & FOREST PARKING GARAGE  
Oak Park, IL**

OPINION OF PROBABLE COST FOR NEW PARKING STRUCTURE  
PROGRAM III

ITEM NO.	DESCRIPTION	COST
1	Demolition (Allowance)	\$75,000
2	New Deck (115, 000sf @ \$40 per SF)	\$4,600,000
3	Soft Cost (A&E Fees, Testing, Legal, etc)	\$400,000
4	Contingency (Construction and Design)	\$230,000
	<b>TOTAL</b>	<b>\$5,305,000</b>

# APPENDIX A

## PHOTOGRAPHIC DOCUMENTATION



APPENDIX A

PHOTOGRAPHIC DOCUMENTATION

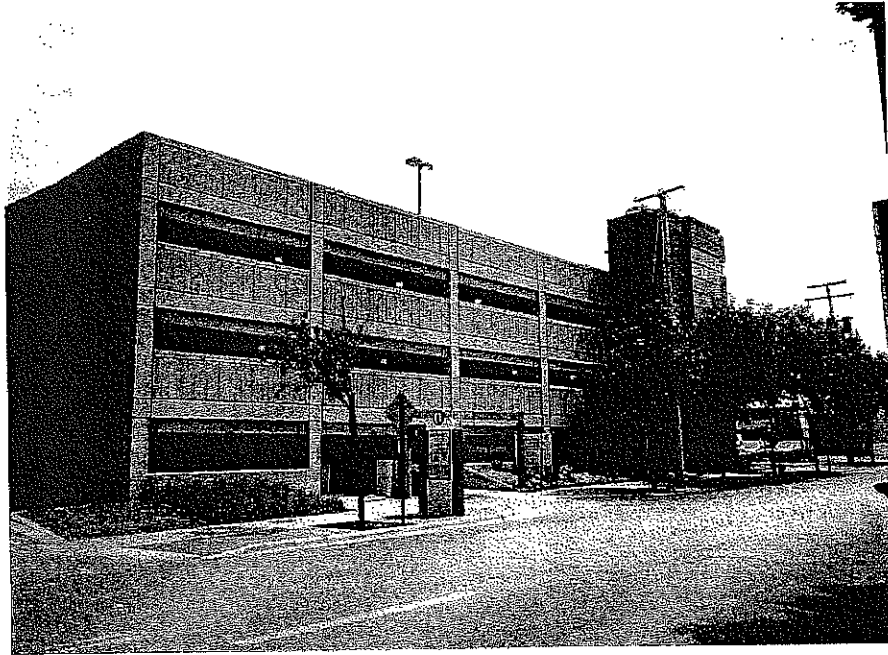
PHOTO NUMBERS	DESCRIPTION
1.	View of west elevation of parking garage.
2.	Posted rates for parking structure.
3.	Typical view of previously repaired area on floor slab.
4.	Typical view of curb spall/delamination.
5 and 6.	View of moderate to heavy scaling in concrete topping.
7.	Asphalt patch located on second level of garage to alleviate water leakage to Visitor Center below.
8.	View of worn waterproofing membrane on second level of garage.
9 and 10.	Typical view of leaking joint between single tee beams.
11 and 12.	View of leaking joint at perimeter of structure. (Note: Rust staining from leaking joints.)
13.	View of flange spall with exposed reinforcing steel.
14.	View of leaking crack in flange of single tee beam.
15 and 16.	Typical view of concrete spalling and delamination on stem of single tee beams.
17 and 18.	View of concrete spalling and rust staining located on spandrel beams of third level soffit.

APPENDIX A

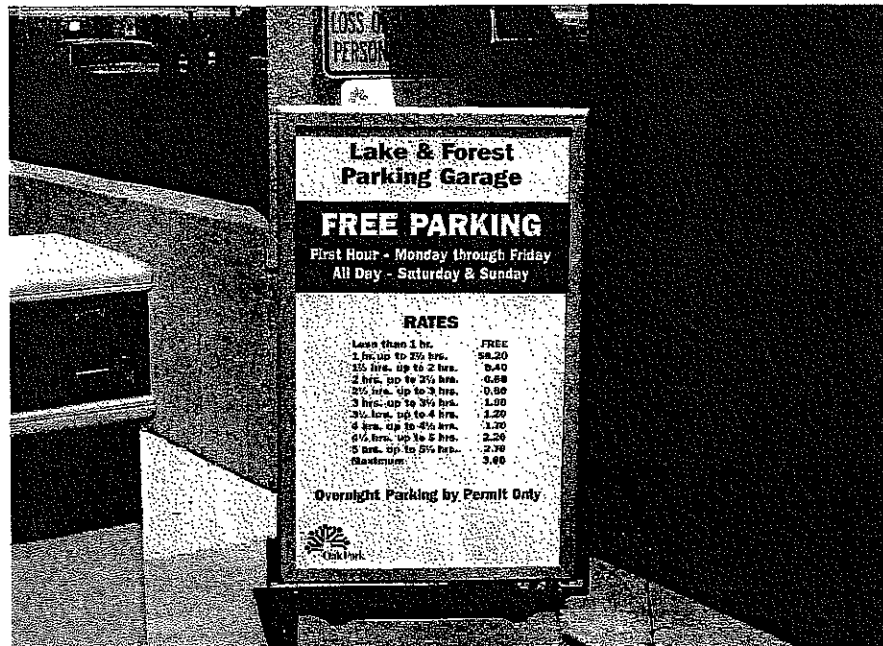
PHOTOGRAPHIC DOCUMENTATION

PHOTO NUMBERS	DESCRIPTION
19 and 20.	Typical view of spalling/cracking to wall panel located throughout the parking structure.
21 and 22.	View of concrete spalling of spandrel beam at bearing location.
23 and 24.	View of concrete spalling of columns.
25 and 26.	Typical concrete spalling/cracking of column corbels located throughout garage. (Note: Spalling of wall panels.)
27 and 28.	View of deteriorated expansion joint located on first level of garage.

# DESMAN ASSOCIATES



Picture 1



Picture 2

DES MAN  
ASSOCIATES



Picture 3



Picture 4



Picture 5

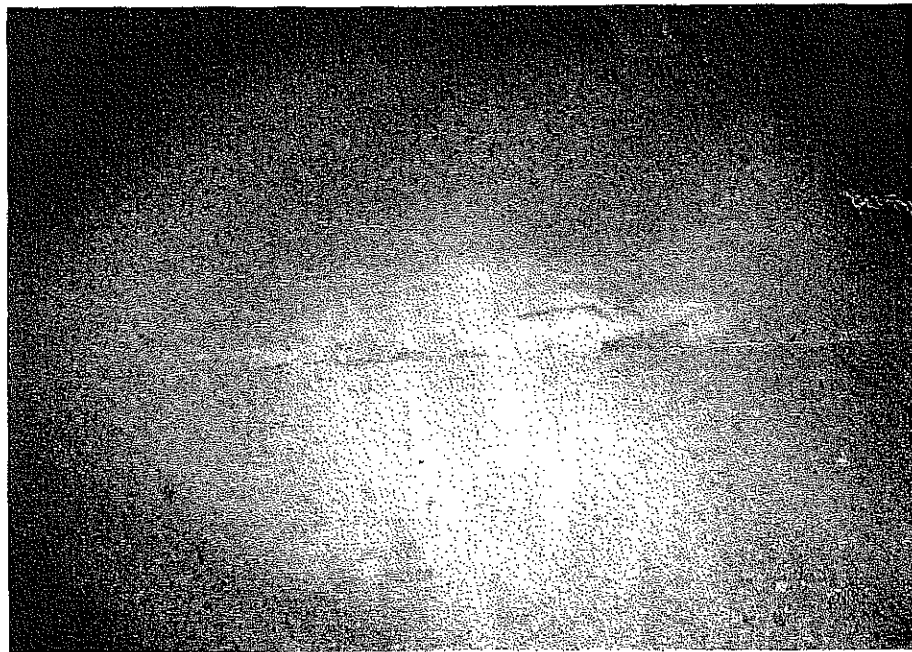


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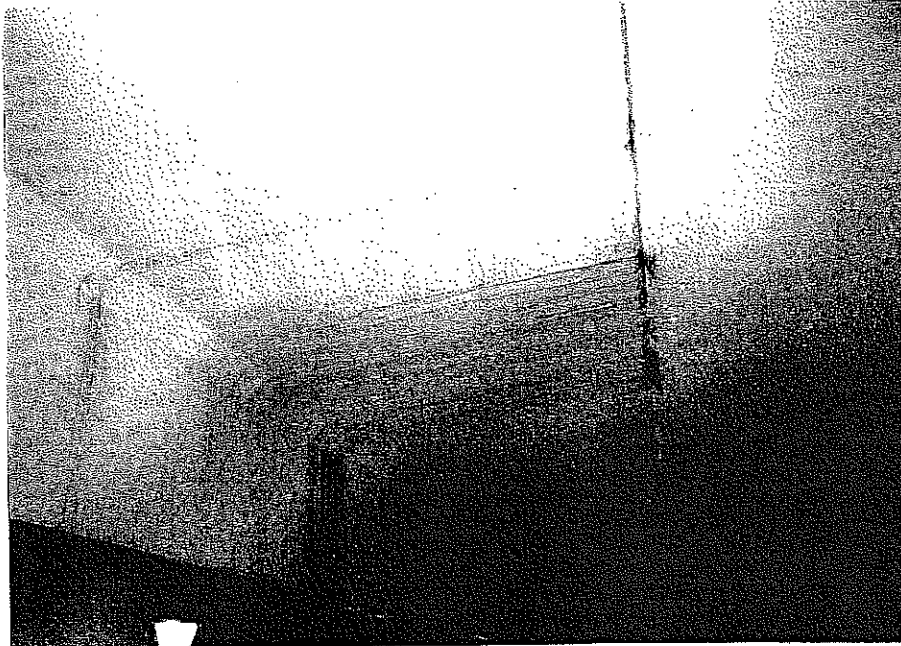
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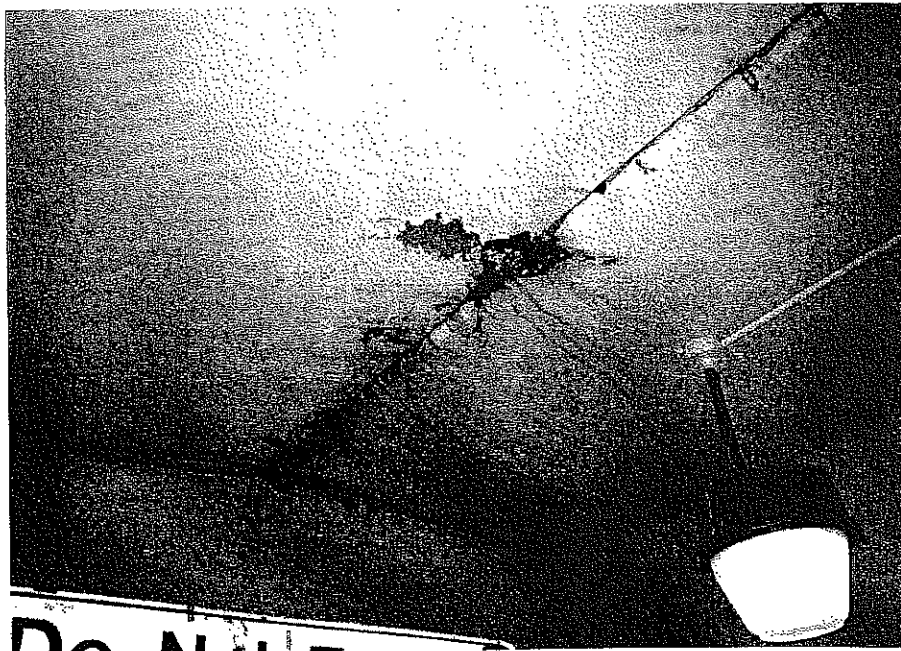
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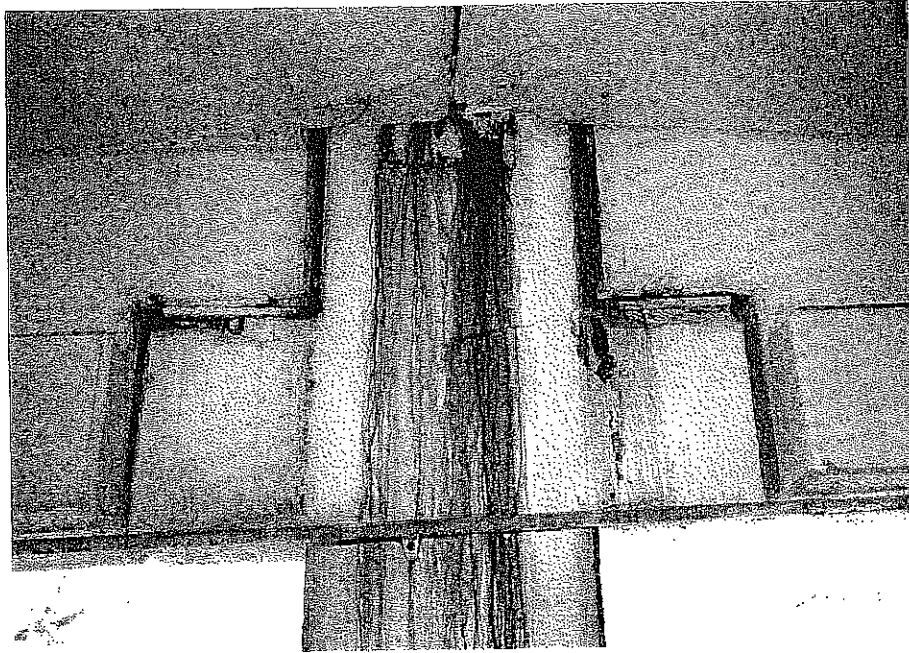
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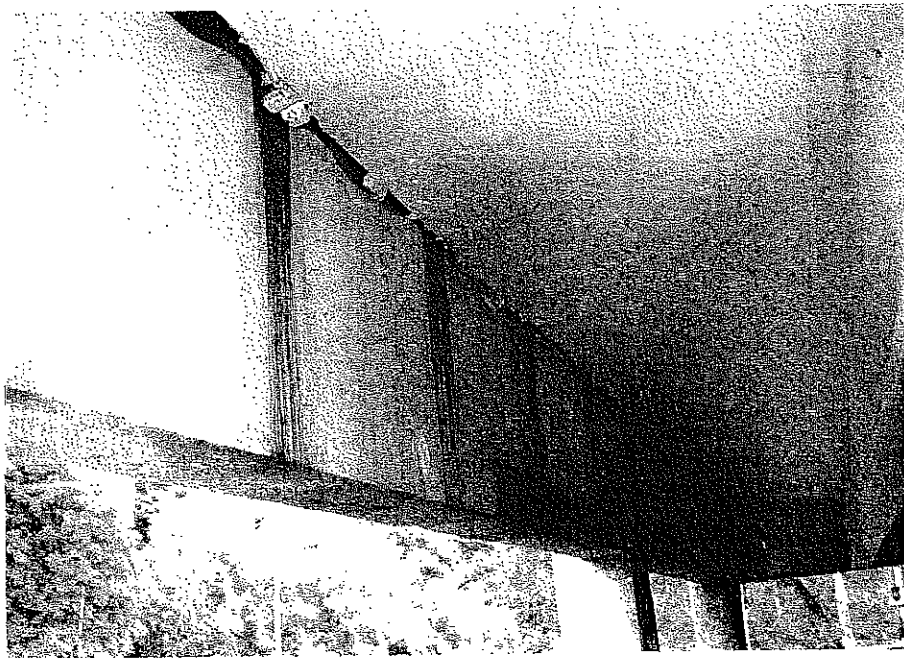
Picture 9



Picture 10



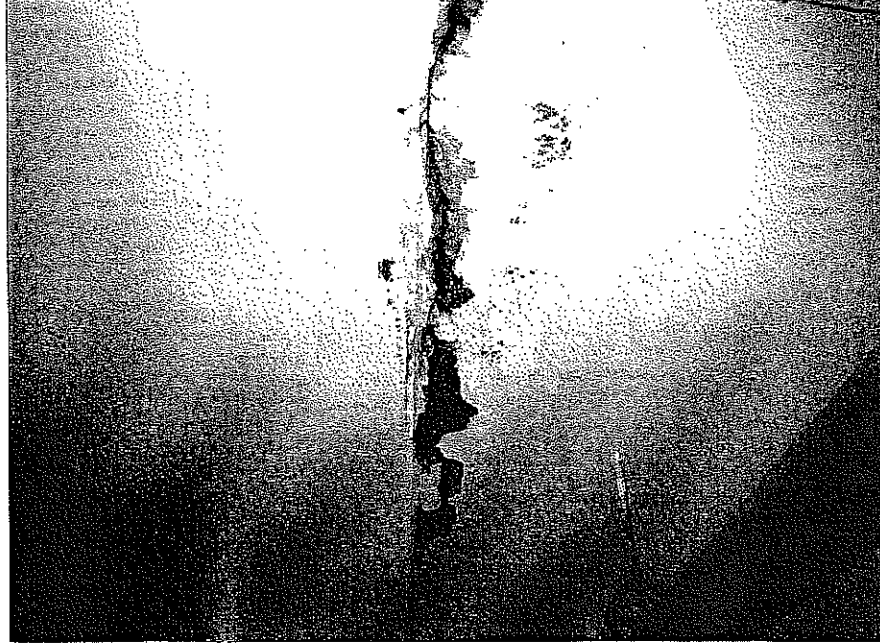
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Picture 12



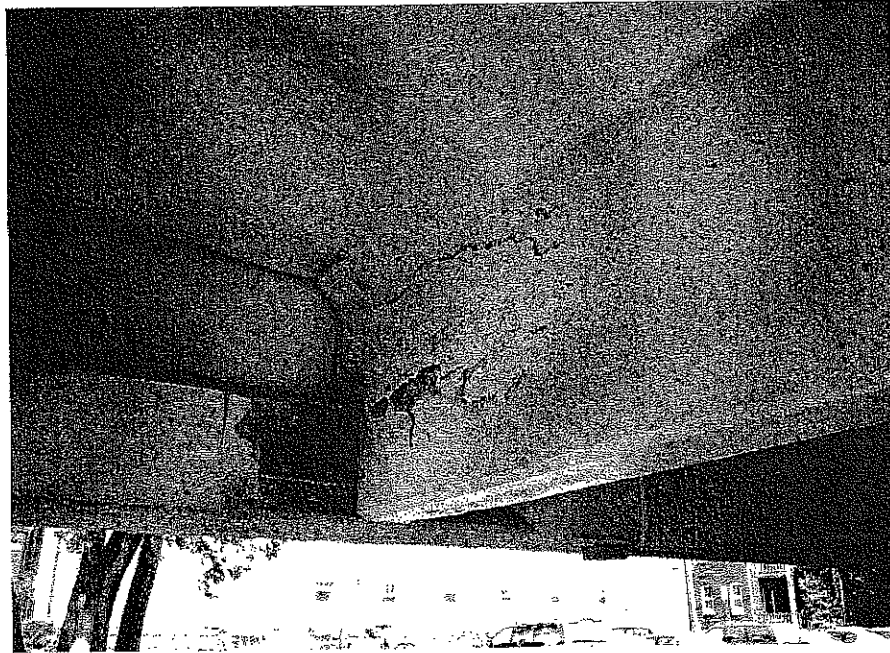
DESMAN  
ASSOCIATES



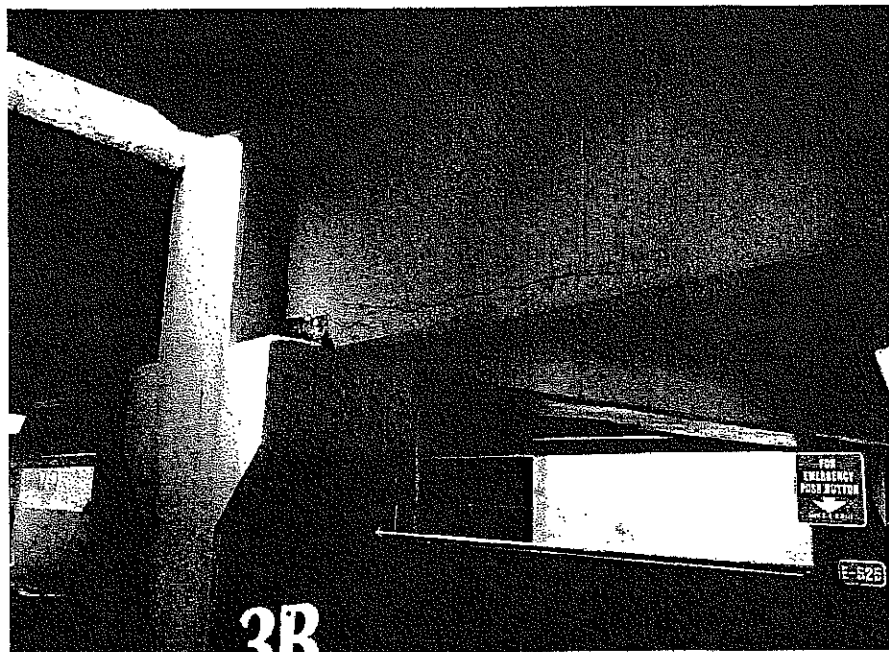
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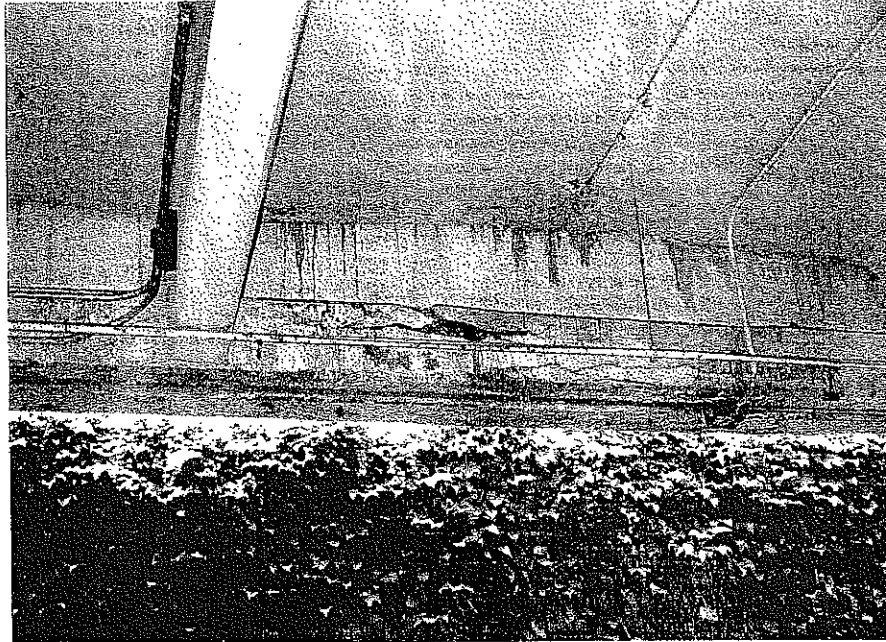
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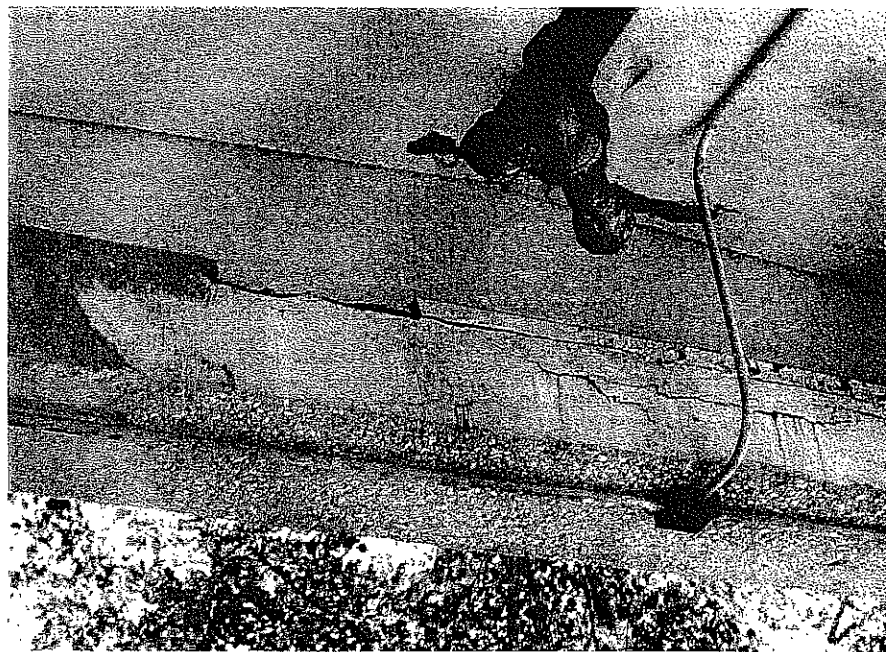
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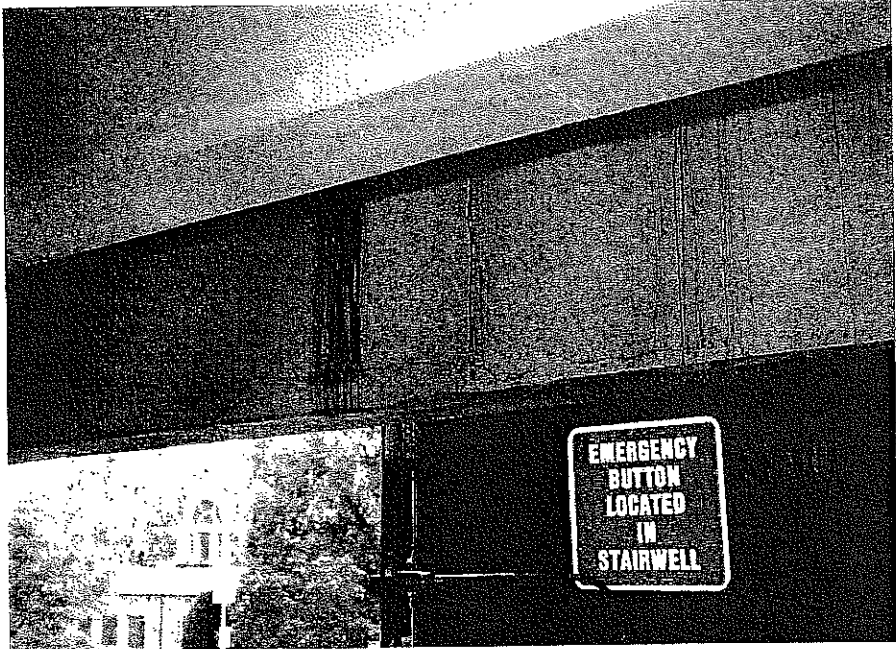
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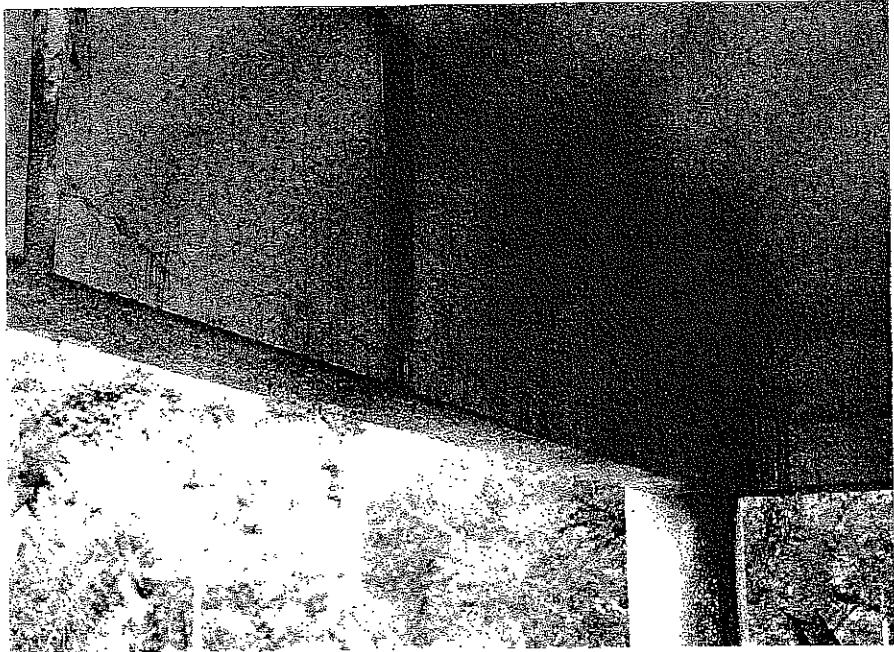
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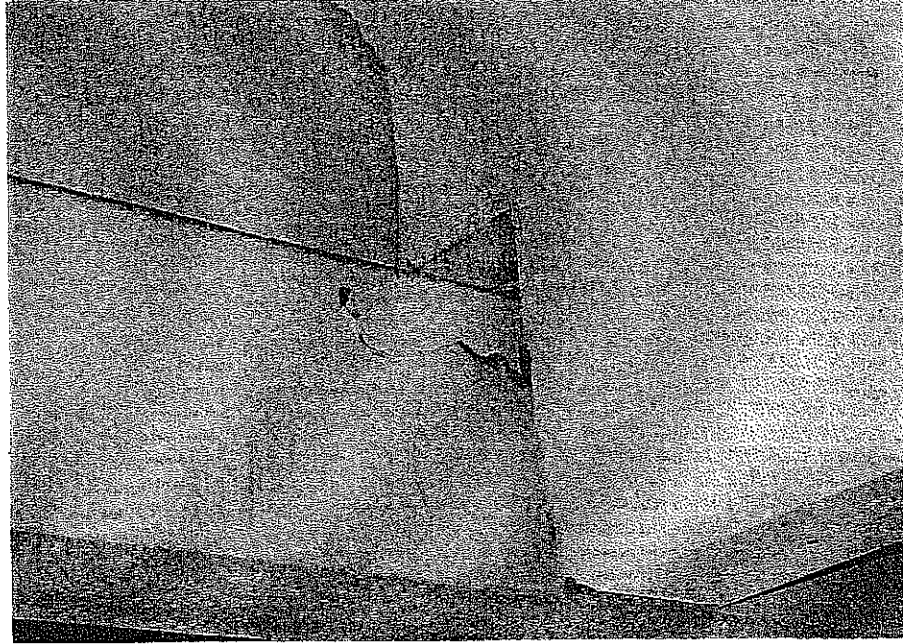
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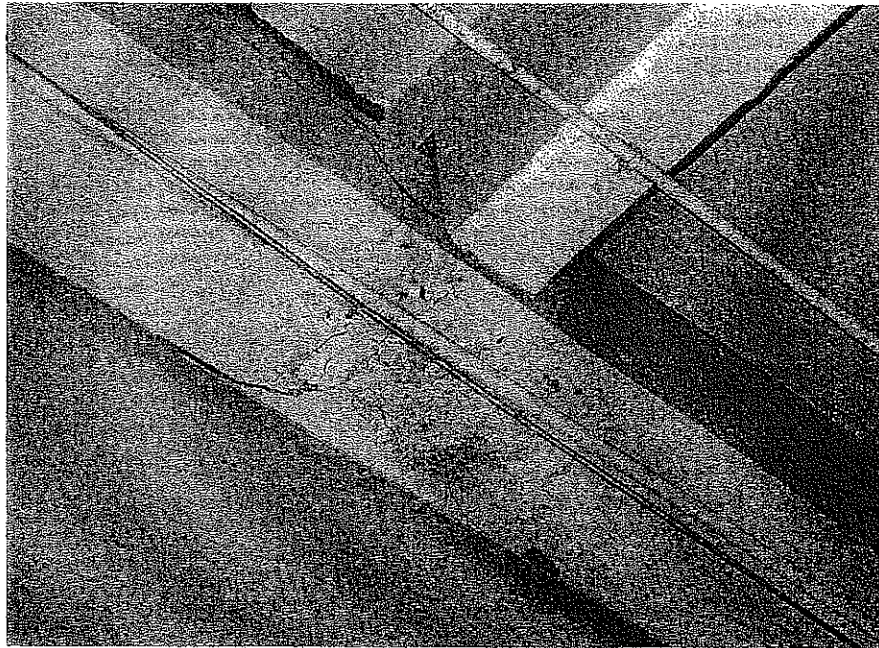
Picture 19



Picture 20



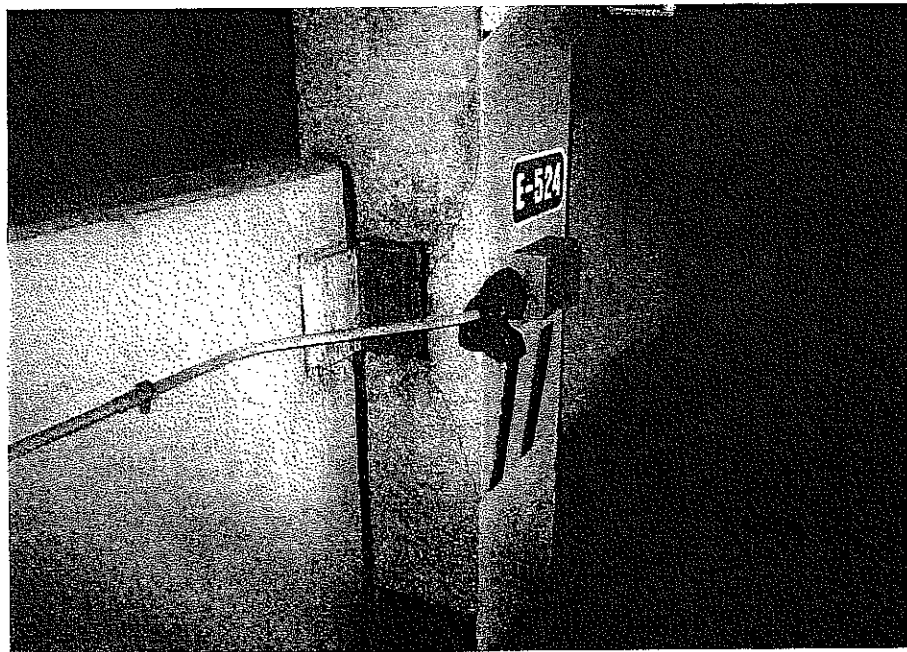
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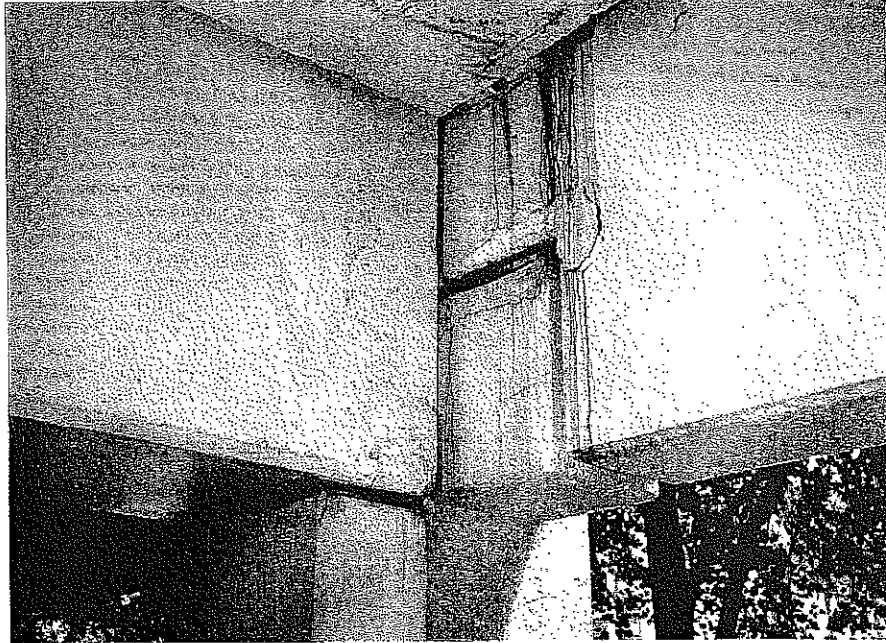
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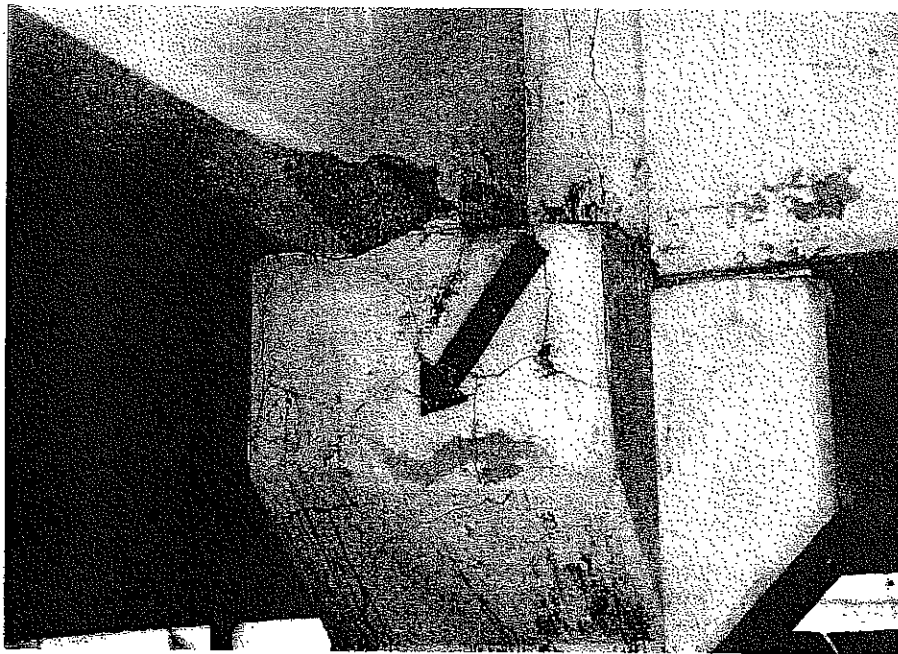
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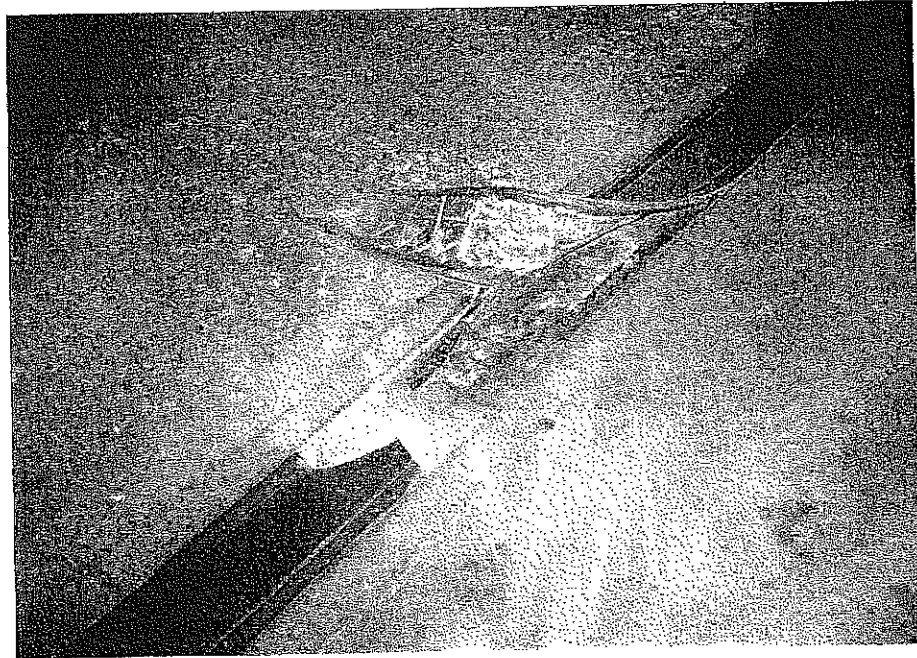
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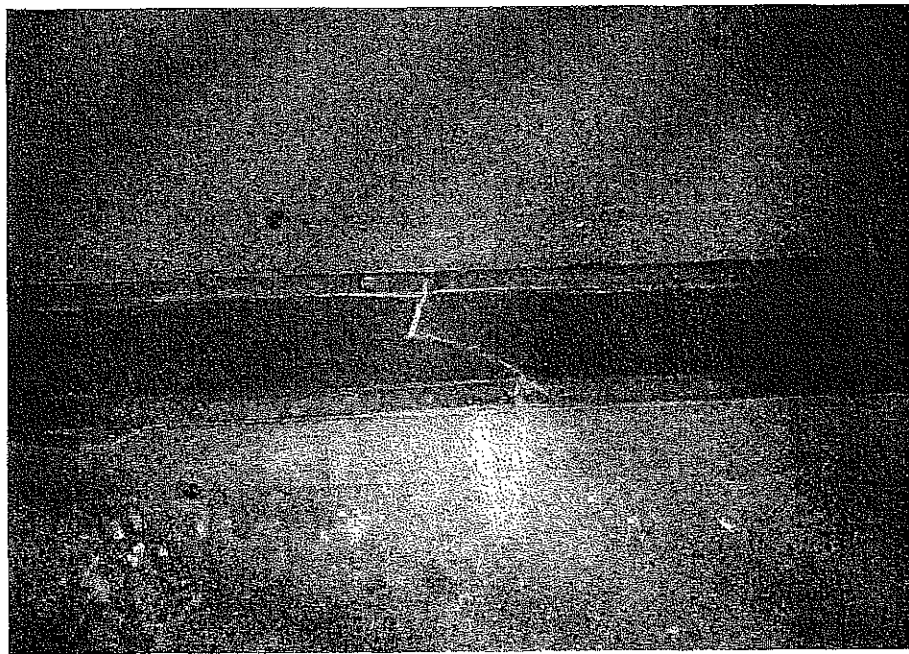
Picture 25



Picture 26



Picture 27



Picture 28



## **APPENDIX B**

### **LABORATORY STUDIES OF CONCRETE SAMPLES**

# Universal Construction Testing, Ltd.

September 4, 2002

UCT Project No. 02197

Mr. Falgun Rami  
Desman Associates  
300 West Washington Street, Suite 1010  
Chicago, IL 60606

RE: Laboratory Studies of Concrete Samples  
Lake & Forest Parking Garage  
Oak Park, IL

RECEIVED

SEP 06 2002

DESMAN ASSOC

Dear Mr. Rami:

Universal Construction Testing, Ltd. (UCT) has completed laboratory studies of the concrete core and powder samples delivered to our laboratories on August 22, 2002, with reference to the aforementioned parking garage structure.

The scope of our work was outlined in your transmittal letter, and included *compression tests* (6), *chloride content analysis* (22), and *petrographic examination* (3).

The obtained test data is summarized below in Table 1.

Table 1 - **Summary of Major Concrete Characteristics**

Concrete Parameters	LF-4 Top Layer	LF-8	LF-10 Top Layer	Recommended by ACI 362-1R, Zone III
Compressive Strength, psi	4800~9290 (partner samples)			5000, min
Chloride Content, % cwt.	0.73 - 7.04			0.15, max
Cracks	not present	F/T-related	shrinkage	none
Air Content, %	5.4	5.9	4.5	6.5 ± 2
Specific Surface, $ft^2/in^3$	742	732	444	600, min
Spacing Factor, <i>in</i>	0.0062	0.0061	0.0114	0.008, max
Cementitious Content lbs/cu.yd	~610	~610	~610	-
W/C-Ratio	0.44	0.45	0.45	0.40, max
Depth of Top Carbonation	1.0	<1.0	1.0	minimum
Paste-Aggregate Bond	good	good	good	good
Aggregates	stable	stable	stable	stable

1548 Old Skokie Road  
Highland Park, IL 60035  
Tel: 847.831.5343  
Fax: 847.831.4912

**UCT**

## STUDIES

**Compressive Strength** of the six (6) designated cores was determined in accordance with the applicable provisions of ASTM C39 and C42. The cores were trimmed, lapped and tested in compression in air-dry condition.

The obtained compression test results are compiled in attached Table 2, indicating the *in-situ* compressive strength of concrete between ~5,000 and 9,000 psi.

**Chloride Content (water-soluble)** of the submitted core samples was determined according to the applicable provisions of Standard Method ASTM C1218. The core samples were cut at the designated depth increments of 1.0", 2.0" and pulverized.

The obtained chloride content data is compiled in attached Table 3.

Please be advised that based on the present state of knowledge, maximum chloride content of 0.15% by weight of cement is suggested by ACI 318 to minimize the risk of chloride-induced corrosion in conventionally reinforced concrete.

Therefore, the chloride ingress significantly *exceeds the corrosion threshold* at both analyzed depths in all core samples. This includes the "base" samples (presumably retrieved from the columns), suggesting that chloride containing admixture(s) were added to the concrete mix during construction. Subsequently, the chloride contamination was aggravated by de-icing salts introduced by vehicular traffic.

**Petrographic Examination** was conducted on cores LF-4, LF-8 and LF-10 according to the applicable provisions of Standard Practices ASTM C856, C294, and C457. The specimens were cut to provide 1-inch thick plates. The plates were lapped using progressively finer silicon carbide abrasives. The lapped surfaces were examined using a stereomicroscope at 105X magnification. The paste was examined at 400X magnification using a polarized microscope in order to determine aggregate and paste mineralogy and microstructure. The *air-void system* was analyzed using the linear traverse procedure. Below are the results of the petrographic examination:

### Core **LF-4** [Level 3]

#### General

The core has a 2 3/4-inch diameter and a 4 1/4-inch nominal length. The top surface is mildly weathered, having exposed fine aggregate. The bottom surface is fractured.

The core consists of two layers of structural lightweight concrete. The bottom layer has a nominal length of 2 inches. Both layers are very *well bonded*, properly air-entrained and exhibit no damage.

The bottom layer has a dark grey colored paste and the top layer has a light grey colored paste.

The wire mesh is located at the bottom of the top layer at 1-3/4 inches from the top surface.

### Top Layer

#### General

Neither cracks nor reinforcement are present within the examined specimen.

#### Air Content

The total hardened air content in this core is 5.4%. The core appears properly air-entrained with an acceptable quality air-void system. Below are the air-void system parameters:

<i>Spacing factor</i>	0.0062"
<i>Specific surface</i>	742 in <sup>2</sup> /in <sup>3</sup>
<i>Number of voids/inch</i>	10.011
<i>Avg. chord intersect</i>	0.00539
<i>Paste/air ratio</i>	5.00

Please note that the following parameters of the air-void system are desirable to provide maximum concrete durability, as well as, the lowest permeability:

<i>Air Content</i>	-	6.0%, min
<i>Spacing factor</i>	-	Less than 0.008 inch
<i>Specific surface</i>	-	600 in <sup>2</sup> /in <sup>3</sup> or greater

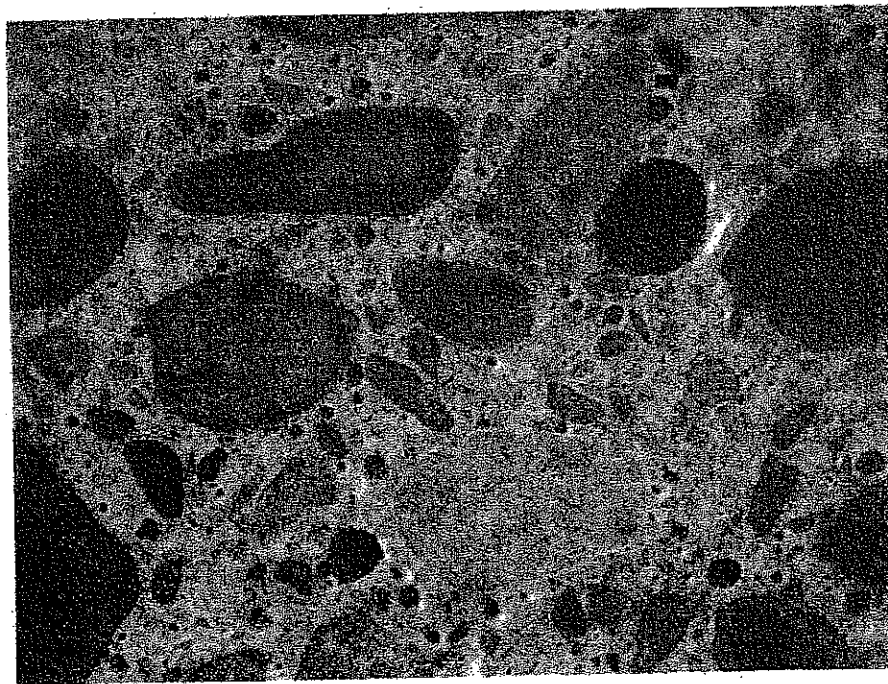


Fig. 1 - Photomicrograph of core LF-4 shows a well developed air-void system along with stable paste and aggregates [FD 9.0 x 11.5 mm]

#### Water-Cementitious Ratio

The water-cementitious ratio is estimated at  $0.44 \pm 0.02$ .

#### Cement Content

The cementitious content is close to 610 lbs/yd<sup>3</sup>.

#### Carbonation

The depth of the top carbonation is 1 mm.

#### Paste Properties

<i>Overall Condition</i>	good
<i>Color</i>	light grey
<i>Hardness</i>	good
<i>Luster</i>	dull
<i>Porosity</i>	average
<i>Paste Volume</i>	27.00%
<i>Morphology of Calcium Hydroxide</i>	fine crystals
<i>Mineralogy of the Cement</i>	C-S-H
<i>Hydration</i>	high
<i>Relict Cement Grains</i>	present
<i>Mineral Admixture</i>	not present
<i>Degree of Differential Settlement</i>	low
<i>Magnitude of Bleeding</i>	low

#### Paste-aggregate bond

The bond between the paste and aggregates is good.

#### Aggregates

The *coarse* aggregate is a 3/8-inch top size expanded shale.

The *fine* aggregate is a mixture of natural sand and structural lightweight aggregate.

The aggregates are chemically and physically stable.

#### The Bottom Layer

This bottom concrete layer appears to contain similar aggregates also in a stable condition. The paste has no cracks in the bottom layer. Both layers are well bonded.

### Comments

The entire core appears to be in a good condition.

### Core **LF-8** [Level 4]

### General

The core has a 2-3/4-inch diameter and a 2-7/8-inch nominal length. The core appears to consist of only one layer of structural lightweight concrete. The bottom surface of the core has the appearance of having been on top of another concrete or substrate. The top surface of the core is weathered, having exposed fine aggregate.

### Reinforcement

Reinforcement is not present within the examined specimen.

### Cracks

One microcrack is present. It is located in the top 2 mm, traveling 5 mm in a horizontal direction. The microcrack appears to be due to cyclic freezing and travels through a lightweight aggregate particle (see photomicrograph below). No other cracks are present.

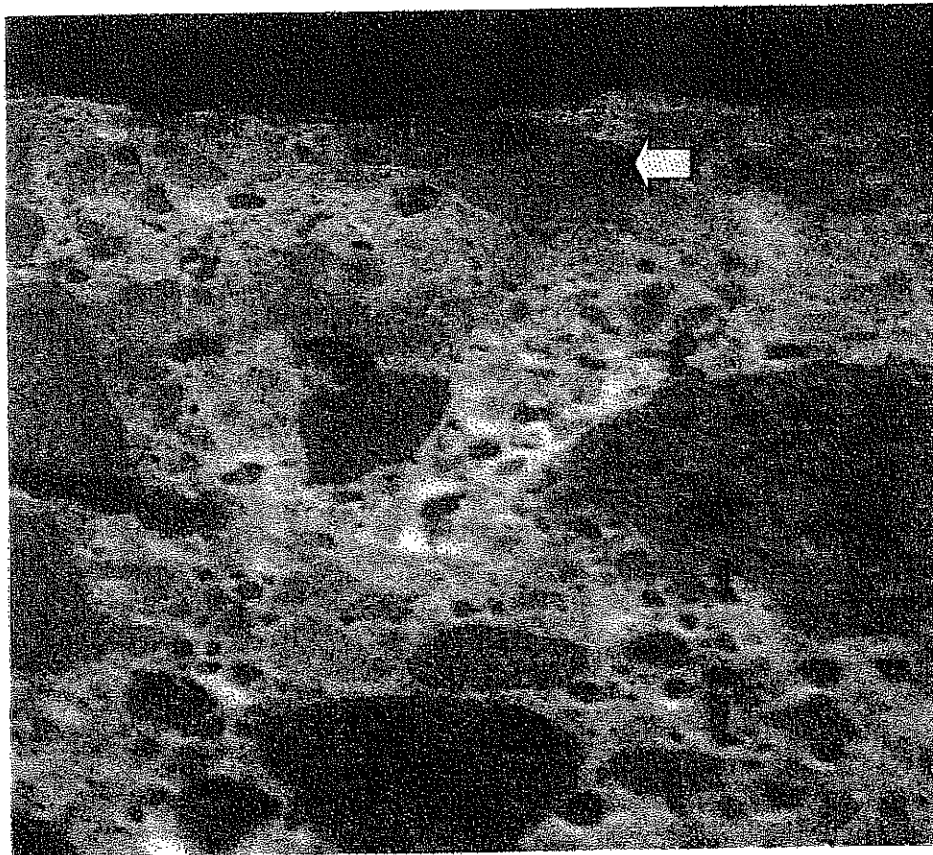


Fig. 2 - Photomicrograph of core LF-8 illustrates a freeze-thaw crack (yellow arrow) in the top 2 mm [FD 9.0 x 11.5 mm]

### Air Content

The core is properly air-entrained having 5.9% air. The quality of the air-void system appears good with the following air-void system parameters:

<i>Spacing factor</i>	0.0061"
<i>Specific surface</i>	732 in <sup>2</sup> /in <sup>3</sup>
<i>Number of voids/inch</i>	10.801
<i>Avg. chord intersect</i>	0.00546
<i>Paste/air ratio</i>	4.57

### Water-Cementitious Ratio

The water-cementitious ratio is estimated at  $0.45 \pm 0.02$ .

### Cement Content

The cementitious content is close to 610 lbs/yd<sup>3</sup>.

### Carbonation

The depth of the top carbonation is < 1 mm.

### Paste Properties

<i>Overall Condition</i>	good
<i>Color</i>	light grey
<i>Hardness</i>	good
<i>Luster</i>	dull
<i>Porosity</i>	average
<i>Paste Volume</i>	26.96%
<i>Morphology of Calcium Hydroxide</i>	fine crystals
<i>Mineralogy of the Cement</i>	C-S-H
<i>Hydration</i>	high
<i>Relict Cement Grains</i>	present
<i>Mineral Admixture</i>	not present
<i>Degree of Differential Settlement</i>	low
<i>Magnitude of Bleeding</i>	low

### Paste-aggregate bond

The bond between the paste and aggregates is good.

### Aggregates

The coarse and fine aggregates are similar to those in core LF-4.

The aggregates are in a stable condition.

### Core **LF-10** [Level 3]

#### General

The core has a 2-3/4-inch diameter and a total length of 5 inches. The core has two layers of structural lightweight aggregate. The layers are *well bonded*. The bottom surface of the core (bottom of lower layer) is fractured.

The only apparent difference between the two layers is that the bottom layer has dark grey paste. According to your instructions, only the top layer was examined in detail.

#### Top Layer

#### General

Top layer is 2 inches thick. The top surface of the upper layer is highly weathered, having exposed coarse and fine aggregate. However, the surface is not scaled.

#### Reinforcement

A 3/16-inch diameter wire mesh is located in the top layer, 1-1/2 inches from the top surface. A 1/4-inch diameter wire reinforcement is also in the bottom layer, 2 inches from the bottom of the top layer. The wires are not corroded.

#### Cracks

Only one crack is present. It appears to be a shrinkage crack, 0.025 mm wide and travels to a depth of 1-inch. The crack starts at the top surface. No other cracks are present in either layer.

#### Carbonation

The depth of the top carbonation is 1 mm.

#### Air Content

The top layer is air-entrained, having a marginally acceptable air-void system. The air content is 4.5% with the following air-void system parameters:

<i>Spacing factor</i>	0.0114"
<i>Specific surface</i>	444 in <sup>2</sup> /in <sup>3</sup>
<i>Number of voids/inch</i>	5.002
<i>Avg. chord intersect</i>	0.00900
<i>Paste/air ratio</i>	6.05



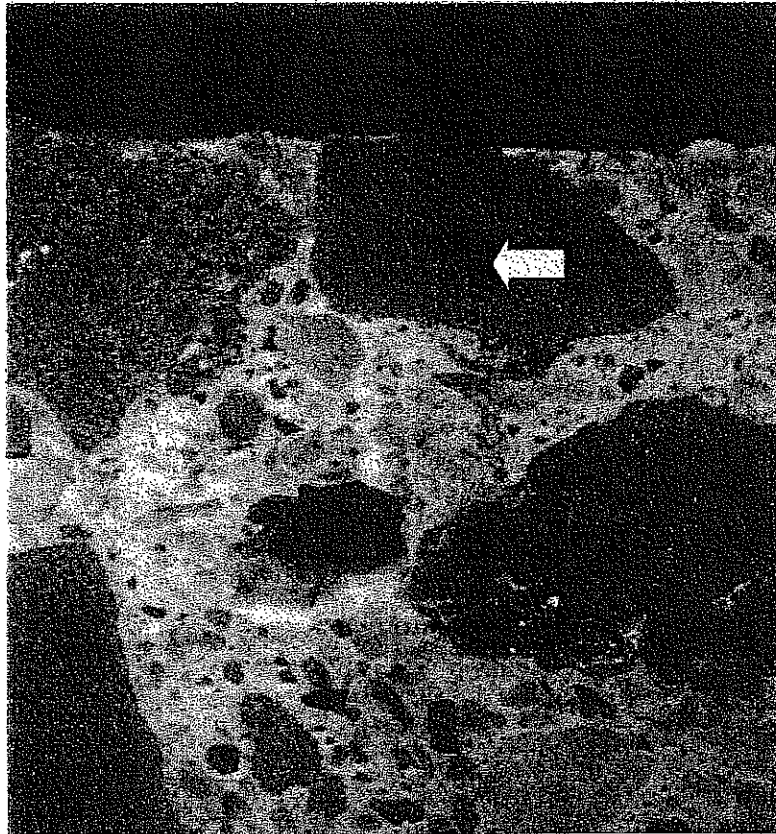


Fig. 3 - Photomicrograph of core LF-10 illustrates a shrinkage related crack (yellow arrow) traveling to a 1-inch depth [FD 9.0 x 11.5 mm]

**Paste Properties**

<i>Overall Condition</i>	good
<i>Color</i>	light grey
<i>Hardness</i>	good
<i>Luster</i>	dull
<i>Porosity</i>	average
<i>Paste Volume</i>	27.22%
<i>Morphology of Calcium Hydroxide</i>	fine crystals
<i>Mineralogy of the Cement</i>	C-S-H
<i>Hydration</i>	high
<i>Relict Cement Grains</i>	present
<i>Mineral Admixture</i>	not present
<i>Degree of Differential Settlement</i>	low
<i>Magnitude of Bleeding</i>	low

**Water-Cementitious Ratio**

The water-cementitious ratio is  $0.45 \pm 0.02$ .

**Cement Content**

The cementitious content is estimated at 610 lbs/yd<sup>3</sup>.

**Paste-aggregate bond**

The bond between the paste and aggregates is good.

**Aggregates**

The aggregates are similar to those in previous cores and they are in a stable condition.

**Lower Layer**

The lower concrete layer is also marginally air-entrained and contains similar aggregates. The aggregates are in stable condition.

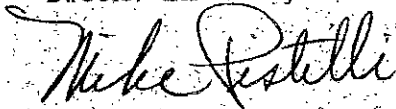
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We appreciate this opportunity to be of continued service to you.

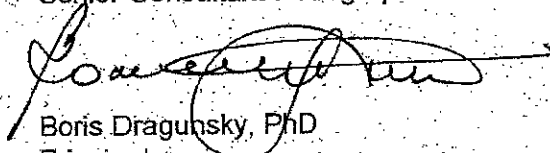
Sincerely yours,  
Universal Construction Testing, Ltd.



Elena Emerson  
Director- Laboratory Services



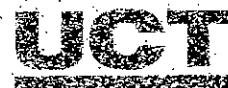
Mike Pistilli  
Senior Consultant-Petrographic Services



Boris Dragunsky, PhD  
Principal

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Attachment



**UNIVERSAL CONSTRUCTION TESTING, Ltd.**

Project: Lake & Forest Parking Garage, Oak Park, IL

Project No: 02197

Client: Desman Associates

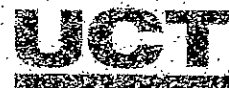
Date: 8-04-02

Table 2.

**Compressive Strength of Concrete Core Samples  
(ASTM C-42)**

CORE No.	LOCATION IN STRUCTURE	TESTED HEIGHT L (in.)	DIAM. D. (in.)	L/D RATIO k	TOTAL LOAD, lbs	UNCORRECTED COMPRESSIVE STRENGTH, psi	CORRECTED COMPRESSIVE STRENGTH, psi
LF-1	Level 4	2.5	2.75	$\frac{0.90}{0.85}$	55,160	<b>9290</b>	7900
LF-2	Level 4	2.75	2.75	$\frac{1.00}{0.87}$	44,810	<b>7540</b>	6560
LF-3	Level 3	2.75	2.75	$\frac{1.00}{0.87}$	50,780	<b>8550</b>	7440
LF-9	Level 4	2.5	2.75	$\frac{0.90}{0.85}$	50,010	<b>8450</b>	7180
LF-12	Level 2	3-3/8	2.75	$\frac{1.23}{0.92}$	28,490	<b>4800</b>	3960
LF-13	Level 2	2.75	2.75	$\frac{1.00}{0.87}$	28,670	<b>4830</b>	4200

Remarks: The cores were tested in air-dry conditions.



**UNIVERSAL CONSTRUCTION TESTING, Ltd.**

Project Name: Lake & Forest Parking Garage

UCT Project No. 02197

Client: Desman Associates

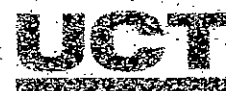
Date: 9-4-02

**Table 3. Chloride Content of Concrete  
(Water-Soluble)**

Sheet 1 of 2

Sample Number	Location in Structure	Level Tested, inch from top	CHLORIDE ION (CL) CONTENT		
			by weight of concrete %	by weight of cement %*	by weight of concrete PPM*
LF-1	Level 1	1	0.448	2.35	4480
		2	0.325	1.70	3250
LF-2	Level 4	1	0.296	1.55	2960
		2	0.198	1.04	1980
LF-3	Level 3	1	0.193	1.01	1930
		2	0.140	0.73	1400
LF-5	Level 3	1	0.627	3.29	6270
		2	0.520	2.73	5200
LF-6	Level 2	1	1.342	7.04	13,420
		2	0.969	5.08	9690
LF-7	Level 2	1	1.133	5.94	11,330
		2	0.777	4.08	7770

Remarks: \*) Assumed cement content 610 lbs/cu.yd and U.W. = 3200 pcy.



# Executive Summary

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## **Multifamily housing is a key component of smart growth.**

- Well-planned, higher-density housing in areas designated for growth has always been an integral component of smart growth.
- By housing more people on less land, multifamily housing developments make it possible to preserve more open space and natural features than do single-family housing developments.
- Multifamily housing reduces development pressure on the remaining undeveloped land in a region.
- Multifamily housing usually requires less public infrastructure, including roads, sewer and water pipes, and electricity and gas lines.
- Multifamily housing makes it financially feasible to integrate commercial and retail uses into a neighborhood.
- Multifamily housing has a smaller per-housing-unit fiscal impact on local governments than single-family homes because it has a smaller impact on local schools. In many cases, apartment and condominium residents effectively subsidize the education of children from single-family homes.

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## **Multifamily housing is needed and is preferred by many people today.**

- Married couples with children have been declining in number since 1970 and now account for just one-quarter of the American population.
- Nontraditional households have been growing in number every decade and, taken as a whole, make up the new majority.
- For the past five years, households making \$50,000 per year or more have been the fastest-growing segment of the apartment market.
- The population at the traditional age for renting (age 20 to 29)—the echo boomers—is expected to increase 11 percent between 2000 and 2010.
- Some baby boomers will choose to downsize to an apartment or condominium after their children leave the “nest”; others will purchase or lease multifamily homes as second homes.
- Multifamily housing allows seniors to remain in their neighborhoods through the different stages of their lives without the hassle of maintaining single-family housing.
- Over 13 million immigrants came to the United States in the 1990s; most new immigrants lack the capital required for sustaining the demands of homeownership and will remain renters for ten to 15 years before they can afford to become homeowners.

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## **Multifamily development often is more environmentally friendly than low-density development.**

- Multifamily development tends to be more compact than single-family housing development, thereby creating less land disturbance and fewer impervious surfaces.
- Multifamily residents tend to drive fewer miles per unit and also tend to use public transportation more frequently than residents of single-family housing.
- Smaller multifamily units use less electricity and apartment residents in general use less water per unit than single-family homes.
- Multifamily housing creates efficiencies that make it easier and more affordable to pick up trash and recyclables, and to pick up and deliver mail.

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## **Multifamily housing choices are important to the economic vitality of the larger community.**

- Access to a large and diverse labor pool has become the most important factor in making corporate decisions on business locations.
- The number one problem facing the labor pool today is housing affordability.
- Failing to provide a balanced range of attractive housing options makes a region less appealing to businesses while also driving up land and housing prices, thus promoting de facto segregation based on household income and type.
- Where alternatives to expensive single-family homes are not available, many households are forced to move farther away from employment centers to find affordable housing, creating traffic and pollution problems as well as a lower quality of life and a decline in worker morale.
- If the affordable housing situation is bad enough, businesses may be forced to relocate to areas with less expensive housing markets.

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### **Multifamily housing can help minimize areawide traffic congestion.**

- While it may increase traffic at an individual site, multifamily housing can significantly relieve overall regional traffic congestion.
- When affordable housing choices near job centers are in short supply, workers must live in distant locations where housing is more affordable, resulting in long, frustrating, and expensive commutes and contributing to areawide traffic congestion.
- Multifamily housing allows more people to live in housing they can afford that is near their work.
- Multifamily housing developments that are clustered along transportation corridors make various kinds of mass transportation feasible.
- Multifamily residents average one motor vehicle per household, while owner-occupied households average two vehicles.
- Single-family housing is likely to generate an average of ten auto trips per weekday while apartments generate only seven; high-rise apartments generate even fewer trips, averaging only four trips per day.
- The availability of recreational facilities—including fitness centers, pools, and picnic areas—within the multifamily community reduces the need for auto trips as most residents can walk to these amenities.

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### **Multifamily housing enables communities to provide housing that is affordable to a wider range of incomes.**

- In parts of the country where economic growth typically is strongest, the labor force critical to sustaining the economy cannot find reasonably priced housing or cannot locate within an appropriate commuting distance of jobs.
- Households depending on a single salary such as that of a teacher or a police officer cannot afford to buy a median-priced home in two-thirds of the metropolitan areas in America.
- Working families with a critical housing need, defined as having to spend more than half their income on housing or living in substandard housing, increased by 60 percent to 4.8 million households.
- Under financial pressures, households typically are forced to move farther out from their jobs, enduring long commutes that aggravate existing traffic problems, or to double up and endure crowded housing conditions.
- Apartments and condominiums play an important role in housing the workforce. They have been providing “workforce housing” for decades, long before the term was coined.

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### **Well-designed multifamily housing can be an attractive and compatible addition to the community.**

- Multifamily housing has come a long way from the plain brick boxes of the past; the design of today's apartments and condominiums is much more creative and sensitive to neighborhood context.
- Multifamily structures allow greater flexibility in siting buildings, which makes it possible to preserve open space and distinctive natural features of the site such as hillsides, streams, or stands of trees.
- Visual preference surveys have demonstrated that consumers, when shown well-designed visual images of high-density communities and low-density communities, often prefer the high-density communities.
- Many multifamily housing communities were constructed using principles consistent with the new urbanist movement. Multifamily housing has an important role to play in new urbanist communities of the future.
- There is no discernible difference in price appreciation of single-family housing located near multifamily buildings and that of homes not located close to multifamily housing.

B

## VILLAGE OF OAK PARK AGENDA ITEM COMMENTARY

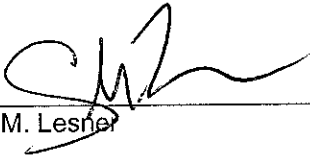
**Item Title:** Resolution Declaring a Distribution of \$4,369,113.93 in Tax Increment Revenues from the Downtown Oak Park TIF District to Taxing Districts Based upon 2010 Tax Rates

**Resolution or Ordinance No.** \_\_\_\_\_

**Date of Board Action** January 9, 2012

**Staff Review:**

Chief Financial Officer

  
\_\_\_\_\_  
Craig M. Lesner

Village Manager's Office

**Item History (Previous Board Review, Related Action, History):** Pursuant to the 2011 Intergovernmental Agreement (IGA) passed by the elected boards of School Districts 97 and 200 as well as the Village, declarations of surplus are required in order to achieve the stated objective of distributing funds to taxing bodies normally captured by the TIF district.

This surplus is calculated by the financial staff of the three parties pursuant to calculations explicitly provided for in the agreement.

**Item Policy Commentary (Key Points, Recommendation, Background):** The calculations (attached) pertaining to the 2010 tax year result in a payment of \$4,369,113.93.

**Item Budget Commentary:** Payment will be made to Cook County for distribution once funds are available in the DTOP TIF fund for this expenditure. The DTOP TIF expense will be charged to account 2098-46204-101-58168.

**Proposed Action:** Approve the resolution.

**RESOLUTION DECLARING A DISTRIBUTION OF \$4,369,113.93 IN  
TAX INCREMENT REVENUES FROM THE DOWNTOWN OAK  
PARK TAX INCREMENT FINANCE DISTRICT TO TAXING  
DISTRICTS BASED UPON 2010 TAX RATES**

**WHEREAS:** The President and Board of Trustees approved an intergovernmental agreement between the Village of Oak Park, Oak Park Elementary School District #97, and Oak Park High School District #200; and,

**WHEREAS:** The agreement provides for payments pursuant to a number of calculations subject to annual review by the parties to the agreement.

**NOW, THEREFORE, BE IT RESOLVED** by the President and Board of Trustees of the Village of Oak Park, Illinois:

The Village declares that \$4,369,113.93 of tax increment revenues are surplus funds within the meaning of the Act and that these funds are real property tax revenues and shall be returned to the Cook County Collector to be distributed to all taxing districts on a pro-rata basis determined by the extended 2010 tax levies.

**THIS RESOLUTION** shall be in full force and effect from and after its adoption and approval as provided by law.

**ADOPTED** this \_\_\_\_\_ day of **January 2012** pursuant to a roll call vote as follows:

**AYES:**

**NAYS:**

**ABSENT:**

**APPROVED** by me this \_\_\_\_\_ day of **January 2012**.

\_\_\_\_\_  
David G. Pope  
Village President

**ATTEST:**

\_\_\_\_\_  
Teresa Powell  
Village Clerk



Summary Page for 2011 DOWNTOWN TIF AGREEMENT

A	B	C	D	E	F	G	H	I	J	K	L	M	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Report Date	Agency Report Date	Agency Tax Amount	Obligation from 2011 Agreement Section 2(a)	SSA Deduction	RDA Deduction	Total Deductions	Target Amount to be distributed	Amount Collected by the TIF as of report date indicated in Cell-B2	Outstanding Taxes by Tax Year	Amount to be distributed	% Levy Collected	% Distributed	
				See SSA Worksheet	See RDA Worksheet	D+E+F	C-G	See Cash Receipts worksheet	C-I	I-G	I/C	K/H	
1/5/2012													
2010	10/12/11	\$8,469,738.56	\$7,703,936	\$427,665.07	\$0.00	\$3,133,501.07	\$5,338,137.49	\$7,500,715.00	\$969,023.56	\$4,369,113.93	88.15%	81.85%	
2011			\$3,851,755			\$3,517,750.00	\$0.00	\$0.00	\$0.00	\$0.00	#NAME?	#NAME?	
2012			\$3,398,125			\$3,398,125.00	\$0.00	\$0.00	\$0.00	\$0.00	#NAME?	#NAME?	
2013			\$7,350,014			\$2,735,014.00	\$0.00	\$0.00	\$0.00	\$0.00	#NAME?	#NAME?	
2014			\$5,496,493			\$3,136,493.00	\$0.00	\$0.00	\$0.00	\$0.00	#NAME?	#NAME?	
2015			\$1,881,563			\$1,881,563.00	\$0.00	\$0.00	\$0.00	\$0.00	#NAME?	#NAME?	
2016			\$1,874,163			\$1,874,163.00	\$0.00	\$0.00	\$0.00	\$0.00	#NAME?	#NAME?	
2017			\$1,874,163			\$1,874,163.00	\$0.00	\$0.00	\$0.00	\$0.00	#NAME?	#NAME?	
2018			\$1,874,163			\$1,874,163.00	\$0.00	\$0.00	\$0.00	\$0.00	#NAME?	#NAME?	
Totals		\$8,469,738.56	\$23,181,975	\$427,665.07	\$0.00	\$23,609,640.07	\$5,338,137.49	\$7,500,715.00	\$969,023.56	\$4,369,113.93			

A	B	C	D	E	F	G	H	I
1	<b>Special Service Area Detail - Section 2.b</b>							
2		With SSA	Without SSA	C-D	Total of the SSA	Frozen Valuation	F-G	E*H
3	<b>Tax Year</b>	<b>Rate -27005</b>	<b>Rate-27004</b>	<b>SSA-Rate</b>	<b>EAV-27005</b>	<b>Frozen-27005</b>	<b>Incr-27005</b>	<b>SSA Deduction</b>
4	2010	10/12/2011 9.677%	8.841%	0.836%	63,563,015	12,406,906	51,156,109	\$427,665.07
5	2011	Fall 2012						
6	2012	Fall 2013						
7	2013	Fall 2014						
8	2014	Fall 2015						
9	2015	Fall 2016						
10	2016	Fall 2017						
11	2017	Fall 2018						
12	2018	Fall 2019						
13	<b>Totals</b>						<b>Total</b>	<b>\$427,665.07</b>

A	B	C	D	E	F	G	H	I	J	K	L
1	<b>RDA Detail - Section 2.c</b>										
2											
3	*16-07-121-017 -0000	*16-07-121-018 -0000	*16-07-121-019 -0000	*16-07-121-020 -0000	*16-07-121-040 -0000	B+C+D+E	IL Dept. of Revenue	F*G	G-G5	Rate-27004	I*J RDA deduction
4	<b>Tax Year</b>	<b>950 Lake</b>	<b>946 Lake</b>	<b>954 Lake</b>	<b>948 Lake</b>	<b>170 N. Forest</b>	<b>Equalizer</b>	<b>Total EAV</b>	<b>Incremental RDA EAV</b>	<b>N/A</b>	<b>N/A</b>
5	Baseline	49,298	48,991	37,080	0	0	3,300	446,718	N/A	N/A	N/A
6	2010	49,205	48,898	37,005	0	0	3,300	445,856	-861	8.841%	\$0.00
7	2011	0	0	0	0	0		0	-446,718		\$0.00
8	2012							0	-446,718		\$0.00
9	2013							0	-446,718		\$0.00
10	2014							0	-446,718		\$0.00
11	2015							0	-446,718		\$0.00
12	2016							0	-446,718		\$0.00
13	2017							0	-446,718		\$0.00
14	2018							0	-446,718		\$0.00
15								0	-446,718		\$0.00
16											
17	NOTE: * As a baseline these represent the existing PIN numbers (per attached aerial view and legal description of redevelopment area) and going										
18	forward any expansion, consolidation or reduction of such PIN numbers shall be incorporated herein.										



