# Town of Carrboro

## Meeting Agenda

## Board of Aldermen

Town Hall
301 W. Main St.
Carrboro, NC 27510

**Tuesday, May 14, 2013** | **7:30 PM** | **Board Chambers - Room 110**

**Please note that public comment is not generally accepted during work sessions of the Board of Aldermen.**

### A. WORK SESSION

**7:30-7:40**

**1.** 13-0271 Work Session on Manager's Recommended Budget for FY 2013-14

PURPOSE: To provide more information on set aside of funds for activities in the recommended budget that may not be used or needed..

**7:40-7:55**

**2.** 13-0272 Discussion of Guidelines for Selecting Advisory Board and Commission Members

PURPOSE: The purpose of this item is to allow the Board of Aldermen to discuss the current guidelines, receive input from advisory board chairs, and possibly, make changes to the guidelines..

***Attachments:*** GUIDELINES
CURRENT SUMMARY OF APPLICATIONS FORM
SUGGESTED RECOMMENDATIONS FORM
Guideline Comments from Town Clerk and Chairs

**7:55-8:35**

**3.** 13-0269 Work session on notice and communication related to land use issues

PURPOSE: The Board is asked to consider the information in the report regarding existing communications and possible new efforts to enhance outreach to citizens.

***Attachments:*** 2013-MemoRegardingCommunications-PJMEdits
LUO Article VI
LUO Section 15-323
Resolution-RTSPHonLUOAmendments

**8:35-9:30**

**4.** 13-0270 Discussion of Parking (Including Unbundling)

***Attachments:*** Staff Memo - Parking Considerations
LUO ART-XVIII, Parking
Definitions of Unbundling
Parking - scan of other communities - Charlottesville
Parking Evaluation Evaluating Parking Problems, Solutions, Costs, and Benefits
Contemporary Approaches to Parking Prices: A Primer
UNCParkAndRide

## B. MATTERS BY TOWN CLERK

## C. MATTERS BY TOWN MANAGER

## D. MATTERS BY TOWN ATTORNEY

## E. MATTERS BY BOARD MEMBERS

# Town of Carrboro

Town Hall
301 W. Main St.
Carrboro, NC 27510

## Agenda Item Abstract

**File Number: 13-0271**

**Agenda Date:** 5/14/2013 **Version:** 1 **Status:** Other Matters

**In Control:** Board of Aldermen **File Type:** Abstract

**Agenda Number:** 1.

**TITLE:**
Work Session on Manager's Recommended Budget for FY 2013-14

**PURPOSE:** To provide more information on set aside of funds for activities in the recommended budget that may not be used or needed..

**DEPARTMENT:** Town Manager

**CONTACT INFORMATION:** David L. Andrews, 918-7315 and Arche L. McAdoo, 918-7439

**INFORMATION:** On May 7, 2013 the Town Manager presented to the Board t a recommended budget for fiscal year 2013-14 The recommended budget totaled $28.3 million comprised of the following:

A. General Fund $20,735,656
B. Special Revenue Fund $ 518,188
C. Capital Fund $ 7,085,685

In addition to this work session, a public hearing on the recommended budget is scheduled for May 21. The Board of Aldermen posed the following two questions about funding that is currently in the budget, but may not be needed: 1) When will we know if it is needed; and 2) what will happen to the funds if they are not needed as budgeted?

Funding for nine activities in the recommended budget may not be needed depending upon the outcome of Board and/or staff program evaluations and recommendations. These items total $172,212 and include the following:

1. Housing Wage Stipend, $48,000 to replace living wage;
2. Musical Festival, $6,000 to expand event to 2 days;
3. Film Festival, $4,000 to expand event to 2 days;
4. ADA Ramp Rental, $2,600 to accommodate handicapped requests for accommodations Century Center;
5. Recycling/Solid Waste Study, $30,000;
6. Tuition Reimbursement, $5,250 to provide for more staff to participate (increased from $600;
7. Green Tract, $29,524 due to Orange County for Town's share of property purchase;

8. Temporary employee, $26,838 to provide additional Recreation and Parks staffing for special events; and,
9. Fuel Contingency, $20,000 to provide for unexpected increase in fuel pricing during the year.

If these funds are not needed or expended for the identified purpose, they automatically revert to the Town's general fund balance at yearend without any required action of the board. However, the Board can elect to appropriate them for any other public purpose.

**FISCAL & STAFF IMPACT:** The potential to decrease costs in the recommended FY 2013-14 budget ranges from zero to $172,212, depending upon decisions of the Board and/or or staff.

**RECOMMENDATION:** That the Board of Aldermen discuss the matter and provide any directions to the Town Manager on adjusting the recommended budget for FY 2013-14.

# Town of Carrboro

Town Hall
301 W. Main St.
Carrboro, NC 27510

## Agenda Item Abstract

**File Number: 13-0272**

**Agenda Date:** 5/14/2013 **Version:** 1 **Status:** Other Matters

**In Control:** Board of Aldermen **File Type:** Abstract

**Agenda Number:** 2.

**TITLE:**
Discussion of Guidelines for Selecting Advisory Board and Commission Members

**PURPOSE:** The purpose of this item is to allow the Board of Aldermen to discuss the current guidelines, receive input from advisory board chairs, and possibly, make changes to the guidelines..

**DEPARTMENT:** Town Clerk

**CONTACT INFORMATION:** Cathy Wilson, 918-7309

**INFORMATION:** The Advisory Board Guidelines were last updated in December of 2008. Several advisory board chairs and the Town Clerk provided comment to the Board that will be considered during the review of the guidelines. Those comments are included as attachments. If the Board wishes to make any changes to the guidelines, they can do so at the meeting.

The Town Clerk recommends that the Recommendation Form be adopted for use in place of the Summary of Applications Form. Those forms have both been included as attachments.

**FISCAL & STAFF IMPACT:** N/A

**RECOMMENDATION:** It is recommend that the Board of Aldermen review the guidelines and determine if an update is necessary.

# GUIDELINES FOR SELECTING ADVISORY BOARD AND COMMISSION MEMBERS

Amended: 4/10/90, 6/27/2000, 1/15/2002, 4/9/2002, 4/18/2006, 2/27/2007, 11/11/2008, 12/2/2008

1. APPOINTMENTS

a. Chairs of advisory boards shall review applications and complete a Summary of Applications form. The Board of Aldermen will make all appointments.

b. The Mayor and Board of Aldermen should endeavor to assure that the membership of the advisory board represents many sectors of the community and offers opportunities for new applicants to serve.

c. In addition, applicants should be committed to attending meetings, participating constructively in the work of the board, making fair decisions, and treating citizens, staff and other board members with respect.

d. Members are limited to two full terms. After completing two full terms, a member must take off one year before applying for re-appointment to the advisory board. However, a board member may apply to serve on another advisory board if he/she desires. The Board of Aldermen may make exceptions to this rule under the following circumstances:

   1. To retain diversity on an advisory board;
   2. To provide continuity in oversight of a major, on-going project;
   3. To keep a member who provides expertise otherwise unavailable on an advisory board (e.g., an engineer on the Planning Board or Board of Adjustment); or
   4. A lack of qualified applicants.

e. Membership shall be limited to one seat on the following boards and commissions Board of Adjustment, Planning Board, Appearance Commission, Transportation Advisory Board, Recreation and Parks Commission, Cable T.V. Committee, Human Services Commission, Cemetery Commission, Environmental Advisory Board, Downtown Development Commission, Northern Transition Area Advisory Committee, Arts Committee and OWASA Board of Directors.

f. Applicants serve three-year terms unless the applicant is filling an unexpired term.

e. Appointments begin on February 1st.

2. APPLICATIONS FOR EXPIRED TERMS

a. Each October the Town Clerk will advertise that the town is accepting applications for upcoming openings on advisory boards and commissions in February.

b. All candidates must complete an application to be considered for appointment or reappointment.

c. Applications will be taken for 30 days.

d. Applications received after the October 31st deadline will be kept on file for future vacancies.

e. Applications will be maintained on file until the following October.

f. The Town Clerk will notify all applicants in writing of receipt of his/her application and give a status report on his/her application.

3. APPOINTMENTS TO EXPIRED TERMS

a. By November 15th, the Town Clerk shall forward copies of applications to the chairs of the boards and commissions and the Mayor and Board of Aldermen.

b. Each chair shall contact his/her applicants and invite them to at least one meeting of their board so they may understand the responsibilities of the board and the necessary time commitment. (Chairs should contact Town staff in the event of a language barrier.) The chairs shall also talk with the applicants about their interest in serving on the advisory board. Board chairs may meet personally with applicants if a meeting of their board is not anticipated within 30 days following receipt of the applicant's request for appointment. This would be in lieu of having the applicant attend a meeting of that board or commission. If applicants do not attend a meeting after two phone calls or emails, then the Chair shall notify the Town Clerk of that fact and he/she will remove the application from consideration.

c. By January 31st, the chair of each board shall submit a Summary of Applications form to the Town Clerk. Copies of all applications and recommendation forms received shall be forwarded to the Mayor and Board of Aldermen.

d. If there are no applicants for the Board in question, the Chair may contact applicants that have applied for other boards. Board chairs should contact the Town Clerk to obtain these applications.

f. If a Summary of Applications form has not been received from board chairs by January 31st, the Town Clerk shall contact the chairs and request a status report.

g. By February 15th, the Mayor and Board of Aldermen will make appointments to boards and commissions to fill expired terms.

4. APPLICATIONS FOR UNEXPIRED VACANT TERMS

a. If a vacancy occurs on a board or commission and the Town Clerk has two or more applications for that specific board or commission, no further advertisement will be necessary. If two or more applications are not on hand, the Town Clerk shall advertise the vacancy for one month.

b. Upon receipt of any application, the Town Clerk shall notify the applicant in writing of receipt of his/her application and give a status report on whether vacancies exist.

5. APPOINTMENTS TO UNEXPIRED TERMS

a. Within two weeks following the one-month advertisement, the Town Clerk shall forward copies of applications to the chair of the board or commission on which the vacancy exists along with copies to the Mayor and Board of Aldermen.

b. The chair shall contact his/her applicants and invite them to at least one meeting of their board so they may understand the responsibilities of the board and the necessary time commitment. (Chairs should contact the Town staff in the event of a language barrier.) The board chair may meet personally with applicants if a meeting of their board is not anticipated within 30 days following receipt of the applicant's request for appointment. This would be in lieu of having the applicant attend a meeting of that board or commission. If applicants do not attend a meeting after two phone calls or emails, then the Chair shall notify the Town Clerk of that fact and he/she will remove the application from consideration.

c. Within four weeks following the advertisement, the chair shall submit a Summary of Applications form to the Mayor and Board of Aldermen. Copies of all applications received shall be forwarded to the Mayor and Board of Aldermen.

d. If there are no applicants for the Board in question, the Chair may contact applicants that have applied for other boards. Board chairs should contact the Town Clerk to obtain these applications.

e. If a Summary of Applications form has not been received from the chair within four weeks following the advertisement, the Town Clerk shall contact the chair and request a status report.

f. Within six weeks following the advertisement, the Mayor and Board of Aldermen will make the appointment to fill the unexpired term.

g. Appointments to unexpired terms of 6 or fewer months will be simultaneously appointed to the following 3-year term.

6. ATTENDANCE

a. The chair of each board or commission shall file with the Town Clerk an attendance report on a quarterly basis indicating if members are present or absent.

b. Unless the chair waives the requirement, members shall be removed if they are absent from three consecutive meetings or if they miss more than 30% of the meetings during a 12-month period. The Town Clerk shall notify the chair in writing as soon as a member becomes subject to removal under this section. The chair will have 10 days after receipt of such notice to waive the removal. If the chair fails to notify the Town Clerk in writing within ten days after receipt of such notice that the automatic removal requirement should be waived, the Town Clerk will send a removal notice to the member. This removal shall be effective on the date of such notice.

# SUMMARY OF APPLICATIONS

_____

(Board)

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Candidate's Name:_____ Date of Application:_____

Candidate Summary:_____

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Candidate's Name:_____ Date of Application:_____

Candidate Summary:_____

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Candidate's Name:_____ Date of Application:_____

Candidate Summary:_____

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_____
_____
_____

To Board Chairs: Please summarize applications as received; contact each applicant for any update one year after last contact; when positions are open, invite each applicant to attend a board meeting prior to making a recommendation.

Name: _____ Date of application/last contact:_____

Summary of qualifications:

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Name: _____ Date of application/last contact:_____
Summary of qualifications:

Name: _____ Date of application/last contact:_____
Summary of qualifications:

Name: _____ Date of application/last contact:_____
Summary of qualifications:

To Board Chairs: Please summarize applications as received; contact each applicant for any update one year after last contact; when positions are open, invite each applicant to attend a board meeting prior to making a recommendation.

**Applicant(s) recommended at this time (1 per open seat)**

Applicant 1: _____
Outstanding qualifications: _____
_____
_____
_____
_____
How applicant compliments current board composition:
_____
_____
_____
Other comments: _____
_____
_____

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Applicant 2: _____
Outstanding qualifications: _____
_____
_____
_____
_____

How applicant compliments current board composition:
_____
_____
_____

Other comments: _____
_____
_____

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Applicant 3: _____
Outstanding qualifications: _____
_____
_____
_____
How applicant compliments current board composition:
_____
_____
_____
Other comments: _____
_____

Comments from Town Clerk:

# GUIDELINES FOR SELECTING ADVISORY BOARD AND COMMISSION MEMBERS

Amended: 4/10/90, 6/27/2000, 1/15/2002, 4/9/2002, 4/18/2006, 2/27/2007, 11/11/2008, 12/2/2008

1. APPOINTMENTS

a. Chairs of advisory boards shall review applications and complete ~~a~~ recommendation Form~~Summary of Applications form~~. The Board of Aldermen will make all appointments.

b. The Mayor and Board of Aldermen should endeavor to assure that the membership of the advisory board represents many sectors of the community and offers opportunities for new applicants to serve.

c. In addition, applicants should be committed to attending meetings, participating constructively in the work of the board, making fair decisions, and treating citizens, staff and other board members with respect.

d. Members are limited to two full terms. After completing two full terms, a member must take off one year before applying for re-appointment to the advisory board. However, a board member may apply to serve on another advisory board if he/she desires. The Board of Aldermen may make exceptions to this rule under the following circumstances:

   1. To retain diversity on an advisory board;
   2. To provide continuity in oversight of a major, on-going project;
   3. To keep a member who provides expertise otherwise unavailable on an advisory board (e.g., an engineer on the Planning Board or Board of Adjustment); or
   4. A lack of qualified applicants.

e. Membership shall be limited to one seat on the following boards and commissions Board of Adjustment, Planning Board, Appearance Commission, Transportation Advisory Board, Recreation and Parks Commission, ~~Cable T.V. Committee~~, Human Services Commission, ~~Cemetery Commission~~, Environmental Advisory Board, ~~Downtown Development Commission~~, Northern Transition Area Advisory Committee, Arts Committee and OWASA Board of Directors.

f. Applicants serve three-year terms unless the applicant is filling an unexpired term.

e. Appointments begin on February 1st.

2. ~~APPLICATIONS FOR EXPIRED TERMS~~APPOINTMENTS TO REGULAR TERMS

a. Each October the Town Clerk will advertise that the town is accepting applications for upcoming openings on advisory boards and commissions in February.

b. All candidates must complete an application to be considered for appointment or reappointment.

c. Applications will be taken for 30 days.

d. By November 15th, the Town Clerk shall forward copies of applications to the chairs of the boards and commissions and the Mayor and Board of Aldermen.

e. Applications received after the Town Clerk has forwarded applications to advisory board chairs will be kept on file for a period of one year and considered for future vacancies. ~~Applications will be maintained on file until the following October.~~

f. The Town Clerk will notify all applicants in writing of receipt of his/her application and give a status report on his/her application.

~~3. APPOINTMENTS TO EXPIRED TERMS~~

g~~a~~. ~~By November 15th, the Town Clerk shall forward copies of applications to the chairs of the boards and commissions and the Mayor and Board of Aldermen.~~

h~~b~~. Each chair shall contact his/her applicants and invite them to at least one meeting of their board so they may understand the responsibilities of the board and the necessary time commitment. (Chairs should contact Town staff in the event of a language barrier.) The chairs shall also talk with the applicants about their interest in serving on the advisory board. Board chairs may meet personally with applicants if a meeting of their board is not anticipated within 30 days following receipt of the applicant's request for appointment. This would be in lieu of having the applicant attend a meeting of that board or commission. If applicants do not attend a meeting after two phone calls or emails, then the Chair shall notify the Town Clerk of that fact and he/she will remove the application from consideration.

c. By January 31st, the chair of each board shall submit a Recommendation Form~~Summary of Applications form~~ to the Town Clerk. Copies of all applications and recommendation forms received shall be forwarded to the Mayor and Board of Aldermen.

d. If there are no applicants for the Board in question, the Chair may contact applicants that have applied for other boards. Board chairs should contact the Town Clerk to obtain these applications.

f. If a ~~Summary of Applications~~Recommendation Form ~~form~~ has not been received from board chairs by January 31st, the Town Clerk shall contact the chairs and request a status report.

g. By March 1 ~~February 15th~~, the Mayor and Board of Aldermen will make appointments to boards and commissions to fill expired terms.

4. APPOINTMENT TO UNEXPIRED TERMS ~~APPLICATIONS FOR UNEXPIRED VACANT TERMS~~

a. If a vacancy occurs on a board or commission and the Town Clerk has two or more applications for that specific board or commission, no further advertisement will be necessary. If two or more applications are not on hand, the Town Clerk shall advertise the vacancy for one month.

b. Upon receipt of any application, the Town Clerk shall notify the applicant in writing of receipt of his/her application and give a status report on whether vacancies exist.

~~5. APPOINTMENTS TO UNEXPIRED TERMS~~

a. Within two weeks following the one-month advertisement, the Town Clerk shall forward copies of applications to the chair of the board or commission on which the vacancy exists along with copies to the Mayor and Board of Aldermen.

b. The chair shall contact his/her applicants and invite them to at least one meeting of their board so they may understand the responsibilities of the board and the necessary time commitment. (Chairs should contact the Town staff in the event of a language barrier.) The board chair may meet personally with applicants if a meeting of their board is not anticipated within 30 days following receipt of the applicant's request for appointment. This would be in lieu of having the applicant attend a meeting of that board or commission. If applicants do not attend a meeting after two phone calls or emails, then the Chair shall notify the Town Clerk of that fact and he/she will remove the application from consideration.

c. Within four weeks following the advertisement, the chair shall submit a Recommendation Form ~~Summary of Applications~~ form to the Mayor and Board of Aldermen. Copies of all applications received shall be forwarded to the Mayor and Board of Aldermen.

d. If there are no applicants for the Board in question, the Chair may contact applicants that have applied for other boards. Board chairs should contact the Town Clerk to obtain these applications.

e. If a ~~Summary of Applications~~Recommendation Form ~~form~~ has not been received from the chair within four weeks following the advertisement, the Town Clerk shall contact the chair and request a status report.

f. Within six weeks following the advertisement, the Mayor and Board of Aldermen will make the appointment to fill the unexpired term.

g. Appointments to unexpired terms of 6 or fewer months will be simultaneously appointed to the following 3-year term.

6. ATTENDANCE

a. The chair of each board or commission shall file with the Town Clerk an attendance report on a quarterly basis indicating if members are present or absent.

b. Unless the chair waives the requirement, members shall be removed if they are absent from three consecutive meetings or if they miss more than 30% of the meetings during a 12-month period. The Town Clerk shall notify the chair in writing as soon as a member becomes subject to removal under this section. The chair will have 10 days after receipt of such notice to waive the removal. If the chair fails to notify the Town Clerk in writing within ten days after receipt of such notice that the automatic removal requirement should be waived, the Town Clerk will send a removal notice to the member. This removal shall be effective on the date of such notice.

Comments from EAB Chair –

2. APPLICATIONS FOR EXPIRED TERMS

a. Each October the Town Clerk will advertise that the town is accepting applications for upcoming openings on advisory boards and commissions in February.

b. All candidates must complete an application to be considered for appointment or reappointment.

c. Applications will be taken for 30 days.

Is 30 days an adequate length of time? I imagine this has been policy for quite some time. I might suggest 45 days, beginning filing time with Sept 15th. I defer to experience, but if others have raised this concern, it oughta be considered.

6. ATTENDANCE

a. The chair of each board or commission shall file with the Town Clerk an attendance report on a quarterly basis indicating if members are present or absent.

b. Unless the chair waives the requirement, members shall be removed if they are absent from three consecutive meetings or if they miss more than 30% of the meetings during a 12-month period. The Town Clerk shall notify the chair in writing as soon as a member becomes subject to removal under this section. The chair will have 10 days after receipt of such notice to waive the removal. If the chair fails to notify the Town Clerk in writing within ten days after receipt of such notice that the automatic removal requirement should be waived, the Town Clerk will send a removal notice to the member. This removal shall be effective on the date of such notice.

I was un-aware that chairs needed to monitor attendence and file reports.

Thanks,

I think the document is sound.

Matthew

Comments from Planning Board Chair:

- Would like all candidates to attend at least one planning board meeting, notifying us in advance so we can do a proper greeting and also note that the person actually showed up.
- Would like ability to extend offer by phone or e-mail to answer questions/talk about responsibilities and time commitment related to planning board membership. Candidate does not have to say yes, but this offers some exposure opportunity. This might mean as applications come in, the chair and vice chairs, and board liaison get notified.
- Would suggest a non-subjective checklist that allows BOA to see the level of exposure: attended a meeting; met with one planning board member; demonstrates understanding of responsibilities and time commitment; adds racial, ethnic, age, or gender diversity to Board; adds geographic diversity to the Board; has particular skill currently needed on the board (list: _____) or something like that.
- Alternatively, would like the opportunity in advance of application review to tell the board (perhaps through the liaison) whether there are particular needs we have.
- Skip the summary of applications. It's a waste of time...

Comments from the Board of Adjustment Chair:

These are my first thoughts. See attached with comments.
By the way, any reason that sections 2 & 3, and 4 & 5 can't be combined?
2+3 = Process and Procedure for Appointment to Regular Terms
4+5 = Process and Procedure for Appointment to Vacant/Unexpired Terms. (by the way, aren't "vacant" and "unexpired" the same thing for this purpose?)

# GUIDELINES FOR SELECTING ADVISORY BOARD AND COMMISSION MEMBERS

Amended: 4/10/90, 6/27/2000, 1/15/2002, 4/9/2002, 4/18/2006, 2/27/2007, 11/11/2008, 12/2/2008

1. APPOINTMENTS

a. Chairs of advisory boards shall review applications and complete a Summary of Applications form. The Board of Aldermen will make all appointments.

b. The Mayor and Board of Aldermen should endeavor to assure that the membership of the advisory board represents many sectors of the community and offers opportunities for new applicants to serve.

c. In addition, applicants should be committed to attending meetings, participating constructively in the work of the board, making fair decisions, and treating citizens, staff and other board members with respect.

**Comment [DGC1]:** Doesn't seem to cover applicants or others who often are not citizens but are making applicantions, e.g. developers.

d. Members are limited to two full terms. After completing two full terms, a member must take off one year before applying for re-appointment to the advisory board. However, a board member may apply to serve on another advisory board if he/she desires. The Board of Aldermen may make exceptions to this rule under the following circumstances:

1. To retain diversity on an advisory board;
2. To provide continuity in oversight of a major, on-going project;
3. To keep a member who provides expertise otherwise unavailable on an advisory board (e.g., an engineer on the Planning Board or Board of Adjustment); or
4. A lack of qualified applicants.

e. Membership shall be limited to one seat simultaneously on the following boards and commissions Board of Adjustment, Planning Board, Appearance Commission,

**Comment [DGC2]:** Might be a better way to word it.

Transportation Advisory Board, Recreation and Parks Commission, Cable T.V. Committee, Human Services Commission, Cemetery Commission, Environmental Advisory Board, Downtown Development Commission, Northern Transition Area Advisory Committee, Arts Committee and OWASA Board of Directors.

f. Applicants serve three-year terms unless the applicant is filling an unexpired term.

e. Appointments begin on February 1st.

2. APPLICATIONS FOR EXPIRED TERMS

**Comment [DGC3]:** This section seems to be for appointment for regular terms—not expired terms.

a. Each October the Town Clerk will advertise that the town is accepting applications for upcoming openings on advisory boards and commissions in February.

b. All candidates must complete an application to be considered for appointment or reappointment.

c. Applications will be taken for 30 days.

d. Applications received after the October 31st deadline will be kept on file for future vacancies.

e. Applications will be maintained on file until the following October.

f. The Town Clerk will notify all applicants in writing of receipt of his/her application and give a status report on his/her application.

3. APPOINTMENTS TO EXPIRED TERMS

**Comment [DGC4]:** Same comment as above

a. By November 15th, the Town Clerk shall forward copies of applications to the chairs of the boards and commissions and the Mayor and Board of Aldermen.

b. Each chair shall contact his/her applicants and invite them to at least one meeting of their board so they may understand the responsibilities of the board and the necessary time commitment. (Chairs should contact Town staff in the event of a language barrier.) The chairs shall also talk with the applicants about their interest in serving on the advisory board. Board chairs may meet personally with applicants if a meeting of their board is not anticipated within 30 days following receipt of the applicant's request for appointment. This would be in lieu of having the applicant attend a meeting of that board or commission. If applicants do not attend a meeting after two phone calls or emails, then the Chair shall notify the Town Clerk of that fact and he/she will remove the application from consideration.

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d. If there are no applicants for the Board in question, the Chair may contact applicants that have applied for other boards. Board chairs should contact the Town Clerk to obtain these applications.

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g. By February 15th, the Mayor and Board of Aldermen will make appointments to boards and commissions to fill expired terms.

4. APPLICATIONS FOR UNEXPIRED VACANT TERMS

a. If a vacancy occurs on a board or commission and the Town Clerk has two or more applications for that specific board or commission, no further advertisement will be necessary. If two or more applications are not on hand, the Town Clerk shall advertise the vacancy for one month.

b. Upon receipt of any application, the Town Clerk shall notify the applicant in writing of receipt of his/her application and give a status report on whether vacancies exist.

5. APPOINTMENTS TO UNEXPIRED TERMS

a. Within two weeks following the one-month advertisement, the Town Clerk shall forward copies of applications to the chair of the board or commission on which the vacancy exists along with copies to the Mayor and Board of Aldermen.

**Comment [DGC5]:** If the Aldermen and Mayor are going to get this later (see #c) from the Chair with recommendations, is this needed at this point in time also? Seems redundant.

b. The chair shall contact his/her applicants and invite them to at least one meeting of their board so they may understand the responsibilities of the board and the necessary time commitment. (Chairs should contact the Town staff in the event of a language barrier.) The board chair may meet personally with applicants if a meeting of their board is not anticipated within 30 days following receipt of the applicant's request for appointment. This would be in lieu of having the applicant attend a meeting of that board or commission. If applicants do not attend a meeting after two phone calls or emails, then the Chair shall notify the Town Clerk of that fact and he/she will remove the application from consideration.

c. Within four weeks following the advertisement, the chair shall submit a Summary of Applications form to the Mayor and Board of Aldermen. Copies of all applications received shall be forwarded to the Mayor and Board of Aldermen.

d. If there are no applicants for the Board in question, the Chair may contact applicants that have applied for other boards. Board chairs should contact the Town Clerk to obtain these applications.

e. If a Summary of Applications form has not been received from the chair within four weeks following the advertisement, the Town Clerk shall contact the chair and request a status report.

f. Within six weeks following the advertisement, the Mayor and Board of Aldermen will make the appointment to fill the unexpired term.

g. Appointments to unexpired terms of 6 or fewer months will be simultaneously appointed to the following 3-year term.

6. ATTENDANCE

a. The chair of each board or commission shall file with the Town Clerk an attendance report on a quarterly basis indicating if members are present or absent.

b. Unless the chair waives the requirement, members shall be removed if they are absent from three consecutive meetings or if they miss more than 30% of the meetings during a 12-month period. The Town Clerk shall notify the chair in writing as soon as a member becomes subject to removal under this section. The chair will have 10 days after receipt of such notice to waive the removal. If the chair fails to notify the Town Clerk in writing within ten days after receipt of such notice that the automatic removal requirement should be waived, the Town Clerk will send a removal notice to the member. This removal shall be effective on the date of such notice.

# Town of Carrboro

Town Hall
301 W. Main St.
Carrboro, NC 27510

## Agenda Item Abstract

**File Number: 13-0269**

**Agenda Date:** 5/14/2013 **Version:** 1 **Status:** Other Matters

**In Control:** Board of Aldermen **File Type:** Abstract

**Agenda Number:** 3.

**TITLE:**
Work session on notice and communication related to land use issues

**PURPOSE:** The Board is asked to consider the information in the report regarding existing communications and possible new efforts to enhance outreach to citizens.

**DEPARTMENT:** Planning

**CONTACT INFORMATION:** Marty Roupe, 918-7333

**INFORMATION:** The topic of communications between the Board, staff, applicants, and citizens arises from time to time with respect to land use issues. Occasionally, staff is commended for communication efforts and applicants and citizens alike note that they feel well informed about a given topic or a project's application. Other times, however, staff and the Board hear from citizens and applicants that changes should be made to increase and enhance communication options. This agenda item provides a summary of existing efforts and established protocols related to communication about land use related matters. It also outlines possible additional efforts and enhancements that staff has been considering.

**FISCAL & STAFF IMPACT:** No impacts identified with considering the report

**RECOMMENDATION:** Town staff requests that the Board consider the information and, if necessary, direct staff on possible changes or enhancements to communication efforts.

**TOWN OF CARRBORO**
NORTH CAROLINA
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**MEMORANDUM**

**TO:** Mayor Mark Chilton and the Board of Aldermen
David Andrews, Town Manager

**FROM:** Martin Roupe, Development Review Administrator

**DATE:** May 7, 2013

**SUBJECT:** Report of Communications Related to Land Use Issues ~~Development Review Process~~

Carrboro's Land Use Ordinance (LUO) includes provisions regarding how and when the Town is required to communicate information to citizens regarding development projects and related matters such as LUO text amendments. Additionally, staff and the Board have implemented and consistently adhered to some additional measures as a part of the review process, even though they are not technically included in the LUO. These matters are described herein, along with ideas for the Board's consideration regarding potential changes and improvements.

**Required Notifications:**

LUO Article VI, Hearing Procedures for Appeals and Applications, is where the bulk of required measures are found in the LUO (attached). Specifically, LUO Section 15-102 requires that notice be given within specified timeframes for the various land use permits and related matters requiring public hearings, as follows:

- Notice regarding public hearings for special use permits is sent to neighbors within 500-feet of the subject property. Such notice must be sent not later than ten (10) days before the hearing. ~~The 500-foot distance exceeds what is required by North Carolina General Statutes (what is that distance?).~~

- For conditional use permits, the notice area extends to 1000-feet from the subject property. Again, the notice must be sent not later than 10 days before the hearing. ~~The 1000-foot distance exceeds what is required by North Carolina General Statutes.~~

- For all other development project matters (appeals, variances, and special exceptions), notice is sent to neighbors within 150-feet. These notices also must be sent not later than 10 days before the hearing.

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- Subsequent to a concern raised by a student living in an apartment, the Town amended the LUO, in March 2002, to require that staff make reasonable efforts to also notify renters of property within the same distances otherwise specified in LUO Section 15-102. Additional commentary regarding this matter is found later in this report, under the 'Ideas for Consideration' section.

- For all aforementioned situations, this section also requires that notice of the public hearing be posted via signs placed on the subject property not less than seven (7) days prior to the hearing.

- For CUPS, notice must also be published in a newspaper with general circulation in the Carrboro area. This notice must be published not less than 7 nor more than fifteen (15) days prior to the hearing.

- Of note, North Carolina General Statutes (NCGS) do not establish minimum hearing notice requirements for quasi-judicial zoning matters. Accordingly, all stated requirements established by Carrboro meet what is required by NCGS.

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Notice related to both LUO text amendments and rezoning requests are outlined in LUO Article XX, Section 15-323 (attached), as follows:

- Notice of possible text amendments must be published once a week for two successive weeks in a newspaper with general circulation in the Carrboro area. The first notice must be published not less than 10 days nor more than 25 days before the hearing.

- Notice for zoning map amendment requests must be mailed to both property owners and renters within 1000-feet not less than 10 nor more than 25 days prior to the hearing. Notice is also posted on site, though no specific timeframe is identified.

- The requirements established by Carrboro e~~The 1000-foot distance e~~xceed ~~s w~~what is required by N~~orth C~~arolina ~~G~~eneral ~~S~~ regarding mailed notifications~~statutes~~. For reference, the statutes only require that the property owner and owners of all abutting properties receive written notification for map amendments, and if more than 50 owners / properties are involved, the statutes allow for published notice in lieu of written notice. Carrboro's LUO is consistent with NCGS regarding published notice, posted notice on site, and referring matters to the Planning Board.~~Notice is also posted on site, though no specific timeframe is identified.~~

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**Additional Notifications, not required by the LUO:**

The Town has a longstanding practice of notifying citizens of land use matters in other ways as well that are not required by the LUO, as summarized below:

- For several years now, staff has posted 'Z' signs on subject properties to give notice to anyone viewing the sign that a land use matter is pending. The signs have a consistent color theme (yellow and black), along with a prominent capital Z. The consistency is important so that citizens over time may grow accustomed to the significance and meaning of the sign

when they see it at various locations. Just below the Z, a title block is included to note what the pending matter is, i.e. rezoning request, conditional use permit, etc. Below the title block, all signs include an explanatory statement inviting citizens to call the Planning Department for additional information. The signs seem to provide a good way of communicating, broadly speaking, to lots of citizens as they are viewable to anyone passing by the site. They tend to remain on the site throughout the review process, though they do disappear from time to time typically due to weather or theft. Staff replaces them upon discovering they are no longer in place. Current practice is to install the sign around the time the formal submittal package is received.

- Staff also posts signs on site regarding the Joint Advisory Board Review Meeting. This is the meeting that typically takes place on the first Thursday of a given month, with the public hearing typically scheduled to take place on the fourth Tuesday of the same month. Though not required by the LUO, staff always attempts to follow the same timeframes noted earlier for public hearings.

- Staff also sends mailed notice of the Joint Advisory Board Review Meeting to everyone that will receive notice of the public hearing itself. This allows citizens the opportunity to share comments with the advisory boards prior to the public hearing, if they so choose. When the notification calendar allows, staff often combines notice of the advisory boards meeting and public hearing in one mailing.

- Neighborhood Information Meetings (NIMs) are strongly encouraged for all SUP and CUP projects. The purpose of the meeting is to share with neighbors what the applicant has in mind. In doing so, the applicant has an opportunity to learn about concerns neighbors may have, and hopefully incorporate suggestions and / or mitigate concerns as they move forward. Since the LUO does not require the meeting however, the applicant retains some degree of freedom regarding how and when the meeting takes place, as well as how and when notice of the meeting is given. Staff always suggests that at least two -weeks notice be given for the meeting, and that the notice be sent to everyone that ultimately will be invited to the hearing. A form must be completed by the applicant prior to the public hearing explaining whether they chose to hold the meeting or not. The form also requires that the applicant disclose whether notice was given to the full range of citizens that will receive notice of the public hearing. Most applicants tend to hold this meeting relatively early in the process, often prior to submitting their formal application. Some applicants, however, choose to submit their formal application and go through at least one formal review round prior to the NIM. Staff has heard from applicants choosing this route that they like to feel reasonably certain that their project design will work before presenting it to neighbors. Of note, LUO Section 15-179 requires that a NIM be held for proposed day care homes and facilities. This is the only use for which a NIM is currently required.

- The Board—Manager Memo also provides a means for staff to communicate information about projects directly to the Board. This is usually only utilized for quick and relatively simple pieces of information. As an example, staff communicates the day, time, and location of the aforementioned NIMs when the information is available in time to do so. When especially time sensitive information needs to be conveyed directly to the Board, email is often used.

- Staff also maintains an Active Projects Report available for viewing or printing on the Town's website. The report includes basic information about active SUP and CUP projects, including details about any upcoming meetings. Based on anecdotal feedback, the report seems to conveniently convey a sense of where projects are in the review process for those that follow or check the report on a regular basis. A number of citizens and developers alike have complimented staff on the report as a relatively easy way to quickly understand where review of a project stands and give them some sense of when it may be moving to a public hearing.

- As referenced above, Carrboro's LUO is consistent with NCGS requirements relating to referring text amendments and rezonings to other review bodies. For several years now, staff has followed an established protocol exceeding the NCGS requirements relating to what other bodies will review and / or receive notice. This includes referring applicable matters to Orange County to review for consistency with the Joint Planning Area Plan. Additionally, staff also submits a resolution to the Board of Aldermen, for Request to Set Public Hearing Agenda Items, that allows the Board to determine what parties should review the information prior to the public hearing (see attached example). The applicable advisory boards are identified, and two blank spaces are also provided. Staff typically suggests which advisory boards should receive the materials, but obviously the Board may choose to add or delete from the selections offered by staff. The Board may also choose to specify at that time, through one or both blank spots, other parties they would like to receive the information. In other words, if the Board knows as of receiving the agenda item that they would like for parties not named to receive the information, then those parties may be identified. An example of this would be downtown business and property owners for a proposed amendment that may significantly affect the downtown area in some manner. Staff does not typically complete this section of the resolution.

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- Staff always welcomes inquiries (by phone, email, or in person) from citizens interested in following the progress of an application. It has been deemed quite difficult to date to create a manner for tracking such requests from citizens so that staff might proactively contact such individuals. Some ideas regarding this matter are included in the 'Ideas for Consideration' section.

- Staff also posts notice of certain hearings on the Town's website, when the Board of Aldermen requests such action, as well as completing additional mail-out notices when the Board determines such actions should take place. As an example, the Board has requested on more than one occasion that business owners and nearby neighbors be notified when a text amendment (not requiring specific mailed notice) potentially would affect ~~the downtown~~a specified area (e.g. downtown-)~~. area or nearby neighborhoods~~.

- Hearings are also published in newspaper ads announcing the agenda for Board of Aldermen meetings and via the Town's Listserv.

**Ideas for Consideration:**

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Staff has been considering some additional measures that, if implemented, may improve upon the Town's ability to effectively communicate with its citizens regarding land use related matters. Some of the ideas under discussion are identified below, for the Board's consideration:

- Staff has been considering the creation of a land use related Twitter account and / or Listserv. Either approach would allow citizens the opportunity to sign up (and delete) for notices of their own choice. The Town Manager has developed a policy and procedure for use of the Town's social media accounts and those protocols will be followed if this idea moves forward. ~~If this idea moves forward, then staff will need to determine protocols for what is posted and when to hopefully create some consistency regarding the type and timing of information sent~~. This idea seems reasonably easy to accomplish and may provide a good avenue for conveying information in a timely manner. A positive associated with this idea is that the information would automatically show up either in a citizen's Twitter feed or their inbox in the case of a Listserv. A concern is the possibility of criticism if staff inadvertently does not post information regarding a matter. The Town already maintains a Twitter account, which could be utilized for this information, but staff is considering whether a separate, development-specific account may be better so as to not overload the account intended for community wide information.

- Staff has contemplated making all project review comments publicly-accessible via the Town's website. While not all that common, this approach has been tried in other places. All the information is a matter of public record anyway, so privacy is not necessarily a concern. It would involve some level of coordination however, and work to set up the capability on the website. Possible benefits associated with this approach include a central location for all the information that could be viewable anywhere an Internet connection is available.

- Alternate means of communicating information with renters about projects and hearings may prove more effective. Specifically, additional signage posted on and near sites where an application is under consideration may be a better way to convey information than the current practice of attempting to notify nearby renters by mail. Anecdotal evidence, i.e. phone calls to the Planning Department suggests that a good number of citizens do see the Z signs posted on site. From staff's perspective, increasing the number of signs posted and perhaps extending the timeframe when they are posted back to the concept plan submittal stage may produce better results than mail. With around 10 years of experience now available, it is fair to say that mailing to renters has proven to be an inaccurate and costly practice. More often than not, at least 30-40 percent of the pieces of mail sent are returned undeliverable. Reasons for the returns vary from a mistakenly-identified address to the address being vacant at the time, among other reasons. When a nearby, large apartment complex is identified as well, an inordinate number of pieces of mail tend to be returned. A single, large apartment complex can produce the need to send several hundred pieces of additional mail not otherwise required. This situation is doubled or worse when multiple apartment complexes happen to exist within the prescribed notification area. Such mailings have involved more than 700 pieces of mail for certain projects whereas only 200 or so would be required to notify owners of property. These mailings are very labor intensive regarding staff time involved, and add (sometimes significantly) to the costs associated with developing in Carrboro. Staff also notes that there has not been any appreciable increase in calls or inquiries from renters over

the years as a result of mailed notifications. If the Board is agreeable to the possibility of exploring alternate means of communicating with renters, then staff requests that the matter be referred back for additional information and a recommendation. A formal proposal would then be developed for the Board's consideration, with additional signage as an option. Other options may be identified as well, including the opportunity to make use of the new Granicus system's ability to allow citizens to receive information via various social media outlets of their choice~~email at their request and ways~~ and ~~-~~to utilize the upcoming website refresh to also allow citizens the opportunity to gain access to development related information at their request. Of note, ~~,~~ ~~-~~a text amendment would be needed to modify the applicable existing LUO language related to notifying renters by mail. In short, staff feels that good options exist, other than stamped mail, for informing all citizens (renters included) about development projects with an emphasis on utilizing available social media outlets, including the Town's website. Viewing statistics to date show that the Town's existing Twitter and Facebook accounts are w~~is w~~idely~~--~~viewed, and information often shared with others.

- Earlier posting of signs regarding potential applications has also been discussed. The general idea discussed has been to consider posting the Z signs on site when a concept plan is formally submitted for review. Some certain threshold, such as a concept review submittal, seems important because staff explores many different ideas with potential applicants that never move forward to even the concept stage. Staff empathizes with concerns expressed by some citizens about not hearing about a project until a potential applicant is multiple months into considering what they want to do with a subject property. However, it does not seem plausible to place a Z sign on every site, every time an inquiry is made, for a variety of reasons.

# ARTICLE VI

## HEARING PROCEDURES FOR APPEALS AND APPLICATIONS

**Section 15-101 Hearing Required on Appeals and Applications.**

(a) Before making a decision on an appeal or an application for a variance, special use permit, or conditional use permit, or a petition from the planning staff to revoke a special use permit or conditional use permit, the board of adjustment or the board of aldermen, as the case may be, shall hold a hearing on the appeal or application. Hearings on conditional use permits shall be set by the board of aldermen as provided in Section 2-17 of the Town Code. **(AMENDED 4/27/82)**

(b) Subject to subsection (c), the hearing shall be open to the public and all persons interested in the outcome of the appeal or application shall be given an opportunity to present evidence and arguments and ask questions of persons who testify.

(c) The board of adjustment or board of aldermen may place reasonable and equitable limitations on the presentation of evidence and arguments and the cross examination of witnesses so that the matter at issue may be heard and decided without undue delay.

(d) The hearing board may continue the hearing until a subsequent meeting and may keep the hearing open to take additional information up to the point a final decision is made. No further notice of a continued hearing needs to be published. **(REWRITTEN 3/23/10)**

**Section 15-102 Notice of Hearing.**

Except as provided in Section 15-117 (dealing with appeals of stop work orders), the administrator shall give notice of any hearing required by Section 15-101 as follows: **(AMENDED 10/24/89)**

(1) Notice shall be given to the appellant or applicant and any other person who makes a written request for such notice by mailing to such persons a written notice not later than ten days before the hearing.

(2) With respect to hearings on matters other than special and conditional use permits, notice shall be given to neighboring property owners by mailing a written notice not later than 10 days before the hearing to those persons who are listed on Orange County's computerized land records system as owners of real property any portion of which is located within 150 feet of the lot that is the subject of the application or appeal. The planning staff shall also make reasonable efforts to mail a similar written notice not less than 10 days before the hearing to the occupants of residential rental property located within 150 feet of the lot that is the subject of the application or appeal. With respect to hearings on the issuance or revocation of special and

conditional use permits, notice shall be given to neighboring property owners by mailing a written notice not later than 10 days before the hearing to those persons who are listed on Orange County's computerized land records system as owners of real property any portion of which is located within 500 feet of the lot that is the subject of a special use permit and 1000 feet of the lot that is the subject of a conditional use permit. The planning staff shall also make reasonable efforts to mail a similar written notice not less than 10 days before the hearing to the non-owner occupants of residential rental property located within 1,000 feet of the lot that is the subject of the conditional use permit. In all cases, notice shall also be given by prominently posting signs in the vicinity of the property that is the subject of the proposed action. Such signs shall be posted not less than 7 days prior to the hearing. **(AMENDED 10/12/82; 1/22/85; 04/15/97; 10/12/99; 3/26/02)**

(3) In the case of conditional use permits, notice shall be given to other potentially interested persons by publishing a notice in a newspaper having general circulation in the Carrboro area one time not less than seven nor more than fifteen days prior to the hearing. **(AMENDED 10/12/99)**

(4) The notice required by this section shall state the date, time, and place of the hearing, reasonably identify the lot that is the subject of the application or appeal, and give a brief description of the action requested or proposed.

(5) In the case of an application for a variance from the provisions of Sections 15-265 and 15-266, dealing with requirements peculiar to areas within the University Lake Watershed or Jordan Lake Watershed, the administrator shall also send the notice required by this section to each government having jurisdiction in the watershed or using the water supply for consumption. **(AMENDED 10/15/96)**

**Section 15-103 Evidence.**

(a) The provisions of this section apply to all hearings for which a notice is required by Section 15-101.

(b) All persons who intend to present evidence to the permit-issuing board, rather than arguments only, shall be sworn.

(c) All findings and conclusions necessary to the issuance or denial of the requested permit or appeal (crucial findings) shall be based upon reliable evidence. Competent evidence (evidence admissible in a court of law) shall be preferred whenever reasonably available, but in no case may crucial findings be based solely upon incompetent evidence unless competent evidence is not reasonably available, the evidence in question appears to be particularly reliable, and the matter at issue is not seriously disputed.

**Section 15-104 Modification of Application at Hearing.**

(a) In response to questions or comments by persons appearing at the hearing or to suggestions or recommendations by the board of aldermen or board of adjustment, the applicant may agree to modify his application, including the plans and specifications submitted.

(b) Unless such modifications are so substantial or extensive that the board cannot reasonably be expected to perceive the nature and impact of the proposed changes without revised plans before it, the board may approve the application with the stipulation that the permit will not be issued until plans reflecting the agreed upon changes are submitted to the planning staff.

**Section 15-105 Record.**

(a) A tape recording shall be made of all hearings required by Section 15-101, and such recordings shall be kept for at least two years. Accurate minutes shall also be kept of all such proceedings, but a transcript need not be made.

(b) Whenever practicable, all documentary evidence presented at a hearing as well as all other types of physical evidence shall be made a part of the record of the proceedings and shall be kept by the town for at least two years.

**Section 15-106 Written Decision.**

(a) Any decision made by the board of adjustment or board of aldermen regarding an appeal or variance or issuance or revocation of a conditional use permit or special use permit shall be reduced to writing and served upon the applicant or appellant and all other persons who request a copy of the hearing or who make a written request for a copy.

(b) In addition to a statement of the board's ultimate disposition of the case and any other information deemed appropriate, the written decision shall state the board's findings and conclusions, as well as supporting reasons or facts, whenever this chapter requires the same as a prerequisite to taking action.

**Section 15-107 through 15-110 Reserved.**

**LUO Excerpt:**

**Section 15-323 Hearing Required: Notice**

(a) No ordinance that amends any of the provisions of this chapter may be adopted until a public hearing has been held on such ordinance.

(b) The planning staff shall publish a notice of the public hearing on any ordinance that amends the provisions of this chapter once a week for two successive weeks in a newspaper having general circulation in the Carrboro area. The notice shall be published for the first time not less than ten days nor more than twenty-five days before the date fixed for the hearing. This period is to be computed in accordance with G.S. 160A-364, which provides that the date of publication is not counted but the date of the hearing is.

(c) With respect to all map amendments, the planning staff shall mail, by first class mail, written notice of the public hearing to the record owners of all properties whose zoning classification is changed by the proposed amendment as well as the owners of all properties any portion of which is within 1000 feet of the property rezoned by the amendment. For purposes of this section the term "owners" shall mean the persons shown as owners on Orange County's computerized land records system. The planning staff shall also make reasonable efforts to mail a similar written notice to the non-owner occupants of residential rental property located within 1,000 feet of the lot that is the subject of the rezoning. The notices required by this subsection shall be deposited in the mail at least 10 but not more than 25 days prior to the date of the public hearing. The staff member mailing such notices shall certify to the board that the notices have been mailed, and such certificate shall be deemed conclusive in the absence of fraud. **(AMENDED 10/12/82; 1/22/85; 10/1/85; 04/15/97; 3/26/02)**

(d) The first class mail notice required under subsection (c) of this section shall not be required if the zoning map amendment directly affects more than 50 properties, owned by a total of at least 50 different property owners, and the Town elects to use the expanded published notice provided for in this subsection. In this instance, the Town may elect to either make the mailed notice provided for in subsection (c) of this section or may, as an alternative, elect to publish notice of the hearing as required by G.S. 160A-364, but provided that each advertisement shall not be less than one-half (1/2) of a newspaper page in size. The advertisement shall only be effective for property owners who reside in the area of general circulation of the newspaper which publishes the notice. Property owners who reside outside of the newspaper circulation area, according to the address listed on the most recent Orange County property tax listing for the affected property, shall be notified according to the provisions of subsection (c) of this section. **(AMENDED 10/24/06)**

(e) For proposed zoning map amendments, the planning staff shall prominently post a notice of the public hearing on the site proposed for a rezoning or an adjacent public street or highway right-of-way. When multiple parcels are included within a proposed zoning map

amendment, a posting on each individual parcel is not required, but the planning staff shall post sufficient notices to provide reasonable notice to interested persons.

(f) The planning staff shall take any other action deemed by the Planning Department to be useful or appropriate to give notice of the public hearing on any proposed amendment.

(g) The notice required or authorized by this section (other than the posted notice required by subsection (e)) shall: **(AMENDED 11/24/09)**

(1) State the date, time, and place of the public hearing.

(2) Summarize the nature and character of the proposed change.

(3) If the proposed amendment involves a change in zoning district classification, reasonably identify the property whose classification would be affected by the amendment.

(4) State that the full text of the amendment can be obtained from the town clerk.

(5) State that substantial changes in the proposed amendment may be made following the public hearing.

(h) The planning staff shall make every reasonable effort to comply with the notice provisions set forth in this section. However, it is the Board's intention that the notice requirements set forth in this section that are not required by state law shall not be regarded as mandatory, and therefore a failure to comply with such requirements shall not render any amendment invalid. **(AMENDED 11/24/09)**

(i) Except for a town-initiated zoning map amendment, when an application is filed to request a zoning map amendment and that application is not made by the owner of the parcel of land to which the amendment would apply (regardless of how the staff treats the proposed amendment under subsection 15-321(c)), the applicant shall certify to the Board of Aldermen that the owner of the parcel of land as shown on the county tax listing has received actual notice of the proposed amendment and a copy of the notice of public hearing. The person or persons required to provide notice shall certify to the Board of Aldermen that proper notice has been provided in fact, and such certificate shall be deemed conclusive in the absence of fraud. **(AMENDED 11/24/09)**

(j) Actual notice of the proposed amendment and a copy of the notice of public hearing required under subsection 15-323(i) of this section shall be by any manner permitted under G.S. 1A-1, Rule 4(j). If notice cannot with due diligence be achieved by personal delivery, registered or certified mail, or by a designated delivery service authorized pursuant to 26 U.S.C. § 7502(f)(2), notice may be given by publication consistent with G.S. 1A-1, Rule 4(j1). This subsection applies only to an application to request a zoning map amendment where the application is not made by the owner of the parcel of land to which the amendment would apply.

This subsection does not apply to a city-initiated zoning map amendment. **(AMENDED 11/24/09)**

A RESOLUTION SETTING A PUBLIC HEARING ON AN ORDINANCE AMENDING THE CARRBORO LAND USE ORDINANCE RELATING TO LAND USE PERMITS IN BUSINESS ZONING DISTRICTS

WHEREAS, the Board of Aldermen seeks to provide ample opportunities for the public to comment on proposed amendments to the Land Use Ordinance;

NOW, THEREFORE BE IT RESOLVED that the Board of Aldermen sets a public hearing on June 25, 2013, to consider adopting "AN ORDINANCE AMENDING THE CARRBORO LAND USE ORDINANCE TO REQUIRE CONDITIONAL USE PERMITS FOR DEVELOPMENTS IN THE BUSINESS ZONING DISTRICTS THAT INVOLVE THE CONSTRUCTION OF MORE THAN 3,000 SQUARE FEET OF BUILDING GROSS FLOOR AREA, TO CHANGE THE REQUIRED PERMIT FOR DEVELOPMENT IN THE COMMERCIAL ZONING DISTRICTS FROM A SPECIAL USE PERMIT TO A CONDITIONAL USE PERMIT, AND TO REQUIRE THAT NEW BUILDINGS IN THE B-1(C), B-1(G), CT, and M-1 DISTRICTS THAT CONTAIN MORE THAN 1,000 SQUARE FEET OF GROSS FLOOR AREA HAVE AT LEAST TWO STORIES."

BE IT FURTHER RESOLVED that the draft ordinance is referred to Orange County, the Town of Carrboro Planning Board and the following Town of Carrboro advisory boards and commissions for consideration and recommendation prior to the specified public hearing date:

| | |
|---|---|
| ☒ Appearance Commission | ☐ Recreation and Parks Commission |
| ☒ Transportation Advisory Board | ☐ Northern Transition Area Advisory Committee |
| ☐ Environmental Advisory Board | ☐ _____ |
| ☒ Economic Sustainability Commission | ☐ _____ |

This is the 21st day of May in the year 2013.

# Town of Carrboro

Town Hall
301 W. Main St.
Carrboro, NC 27510

## Agenda Item Abstract

**File Number: 13-0270**

**Agenda Date:** 5/14/2013 **Version:** 1 **Status:** Other Matters

**In Control:** Board of Aldermen **File Type:** Abstract

**Agenda Number:** 4.

**TITLE:** Discussion of Parking (Including Unbundling)

**PURPOSE:** The purpose of this item is for the Board of Aldermen to discuss issues related to the supply and demand for parking, the regulation of parking and the enforcement of parking requirements, particularly in the downtown**.**

**DEPARTMENT:** Planning and Economic and Community Development

**CONTACT INFORMATION:** Patricia McGuire 919-918-7327; Annette Stone 919-918-7319

**INFORMATION:** See attached staff memo on a variety of parking-related matters and supplemental materials**.**

**FISCAL & STAFF IMPACT:** None noted specifically at present; potential impacts vary based on other actions the Board many consider taking in the future.

**RECOMMENDATION:** Staff recommends that the Board of Aldermen discuss the information submitted and provide feedback.

TOWN OF CARRBORO

NORTH CAROLINA

**TRANSMITTAL** **PLANNING DEPARTMENT**

**DELIVERED VIA:** ☐ *HAND* ☐ *MAIL* ☐ *FAX* ☒ *EMAIL*

**To:** **David Andrews, Town Manager**
**Mayor and Board of Aldermen**

**From:** **Patricia J. McGuire, Planning Director**

**Date:** **May 9, 2013**

**Subject:** **Parking Considerations**

Recent discussions continue a long history of inquiries, debates, modifications and concerns about parking. Though greater attention has been drawn to parking in the downtown, many actions have addressed parking issues in areas outside the downtown – on private lots and along public streets. A search on the word 'parking' on the website of the Town of Carrboro locates 635 documents. These documents range from plans and regulations to development applications, grant proposals, property acquisitions, and budgets. In 2013 alone, attentions have turned to parking in relation to discussions of affordable housing, changes in park and ride lot management, and new development. The purpose of this agenda item is to provide the Board of Aldermen an opportunity to examine some of these topics in greater detail and determine whether further research, ordinance modification, planning or outreach are of interest.

Parking in general

Recent discussions have focused on parking in the downtown as the Town has been undergoing changes associated with the construction and opening of a new business (Hampton Inn and Suites), replacement of a long-standing business (PTA Thrift Shop), and consideration of a third new project (Shelton Station). These projects involve significant investments and both require and result in a variety of changes – traffic patterns, long hours of construction activity, noise, and an influx of workers. The changes have something of a ripple effect, as owners of other commercial or nearby residential property reassess their interests and goals and some decide to improve their properties as well, or seek a buyer who is so inclined. When improvements to such

properties result in increased occupancy and vehicle ownership and the sites lack sufficient parking, spillover of vehicles to other areas can and does occur. The information that follows includes a summary of parking requirements, some details about parking supply and an overview of recent reports, actions, and comments related to parking.

Three issues should be noted with regard to parking requirements in the downtown. First, Article XVIII (http://www.townofcarrboro.org/PZI/PDFs/LUO/Art-xviii.pdf) of the Land Use Ordinance includes a table of parking requirements that specifies the number of parking spaces, stacking room, or storage spaces required by all uses in the Table of Permissible Uses. Where uses are not specified, parking requirements are determined based on an interpretation of the classification in which the use best fits. Second, the table establishes a presumptive standard, as specified in Section 15-292, which is assumed to be a sufficient amount of parking, barring other considerations. The ordinance further allows that any use may be evaluated in relation to the standard and a requirement that is greater or lesser than that specified may be established by the permit-issuing authority. The permit-issuing authority may grant that deviation from the standard, subject to a condition that, if less than that otherwise required, the applicant has on ongoing responsibility to provide additional parking if it should become a problem. Third, Section 15-299 includes special provisions for lots with existing buildings that allows those lots to provide what parking they can on-site, and to meet additional parking requirements with satellite parking areas. As with deviations from the presumptive standard, this provision is also subject to an ongoing need for an applicant to ensure adequate parking, as satellite parking becomes available. Staff requires that applicants acknowledge this responsibility whenever a permit is issued, but it must be noted that a mechanism for tracking this is not in place.

Satellite parking agreements may also be used to satisfy parking requirements. Agreements authorize use of these spaces and seem to occur between businesses that have significantly different demands (in terms of hours of operation) for parking. Payment-in-lieu of providing parking spaces is also allowed, based upon the permit-issuing authority finding that public parking facilities exist or are expected to be constructed within a reasonable time and proximity. Completion of a parking plan for the downtown is considered necessary before payments can be accepted.

Carrboro's downtown includes approximately 100 acres. Within this area, surface parking lots currently provide spaces for parking about 3,900 vehicles and 289 spaces are within lots managed for public use. The ratio of parking to land area is approximately 31 percent (see map of Downtown Parking and Zoning).

| **Overview of Reports and Actions that implications for parking – 2000 to present** | |
|---|---|
| March 2000 | Special Downtown Tax District, to provide services including parking, considered. |
| December 2000 | Carrboro Vision 2020 adopted. Includes policy statement for doubling commercial square footage from 2000 level, based in part |

| Overview of Reports and Actions that implications for parking – 2000 to present | |
|---|---|
| | on assessment of available surface parking in downtown. |
| April, 2002 | Board of Aldermen establishes Parking Task Force. |
| October 2002 | Task Force (TF) report presented to Board of Aldermen. |
| February 2003 | Staff report on implementing TF recommendations. |
| February 2003 | Board of Aldermen adopts a cross-section plan for Roberson Street, which includes on-street parking. |
| April 2003 | Board amends Town Code to allow on-street parking along Sweet Bay Place. |
| April – May 2004 | Public hearing on text amendments to downtown parking requirements. Changes adopted include reduced requirements for certain uses, shared parking. |
| June 2005 | Downtown Circulation Study presented – includes recommendations for changes to on-street parking. |
| December 2006 | Regional Technology Strategies 2006 report, Creating Carrboro's Creative Economic Future, included the following recommendation related to enhancing downtown: Allow for adequate parking downtown: Carrboro is nearing the breaking point in terms of parking. |
| January 2008 | Downtown parking supply and demand study gets underway. |
| April 2008 | Report presented to Board of Aldermen. |
| November-December 2008 | Economic Sustainability Commission recommends moving forward with a parking plan. |
| January 2009 | Staff report to Board of Aldermen- follow-up to parking study. |
| November 2009 | Town enters into lease agreement for Andrews-Riggsbee parking lot. |
| November 2011 | Review of Downtown Traffic Circulation Issues. |
| March 2011 | Town enters lease agreement for spaces parking deck to be built at 300 E. Main. |
| February- March 2012 | Land Use Ordinance Text Amendments related to bike parking and compact car parking. |
| June 2012 | Report on locating a Triangle Transit stop in Carrboro. |
| January 2013 | Report on changes to park and ride operations – payment to be required. |
| February 2013 | Report on traffic in downtown Carrboro. |
| March 2013 | Public hearing on the Shelton Station mixed-use development. |
| April 2013 | Presentation from UNC-DCRP spring workshop students on their report, "Housing and Transportation Affordability in Carrboro," which outlined potential changes to parking and open space requirements. |

Unbundling

Unbundling is a term that applies to renting or selling parking spaces separate from associated land uses. The strategy has been found to reduce vehicle use and ownership,

and thereby encourage some drivers to pursue public transit or other non-vehicular modes of transportation. When the savings from removing a parking requirement are transferred to residents, the reduction in housing costs becomes another a clear benefit. Communities that have successfully separated parking requirements from land uses, such as San Francisco, California, are often in areas with well-established public transit systems, suggesting that an unbundling strategy may be better suited to transit-rich environments.

Two examples of local governments along the east coast that allow or require unbundling include Arlington, Virginia, and Dorchester, Massachusetts. Market Commons, in Arlington, is a 300-unit apartment complex that charges separately, on a sliding scale, for residential parking spaces, which are shared in a deck with retail and restaurant parking places. (Online TDM Encyclopedia. http://www.vtpi.org/tdm/tdm28.htm#_Toc128220507.) Dudley Village, a mixed-use affordable housing development in Dorchester, is part of a transit-oriented development with 0.7 parking spaces per unit, unbundled from the cost of renting a unit. (Metropolitan Area Planning Council. http://www.mapc.org/resources/parking-toolkit/strategies-topic/unbundled-parking.) The local discussion of unbundling has most recently taken place around the Shelton Station development. The approved permit for the project does not address unbundling, though car sharing, a companion strategy that has been found to increase the success of unbundling, was included.

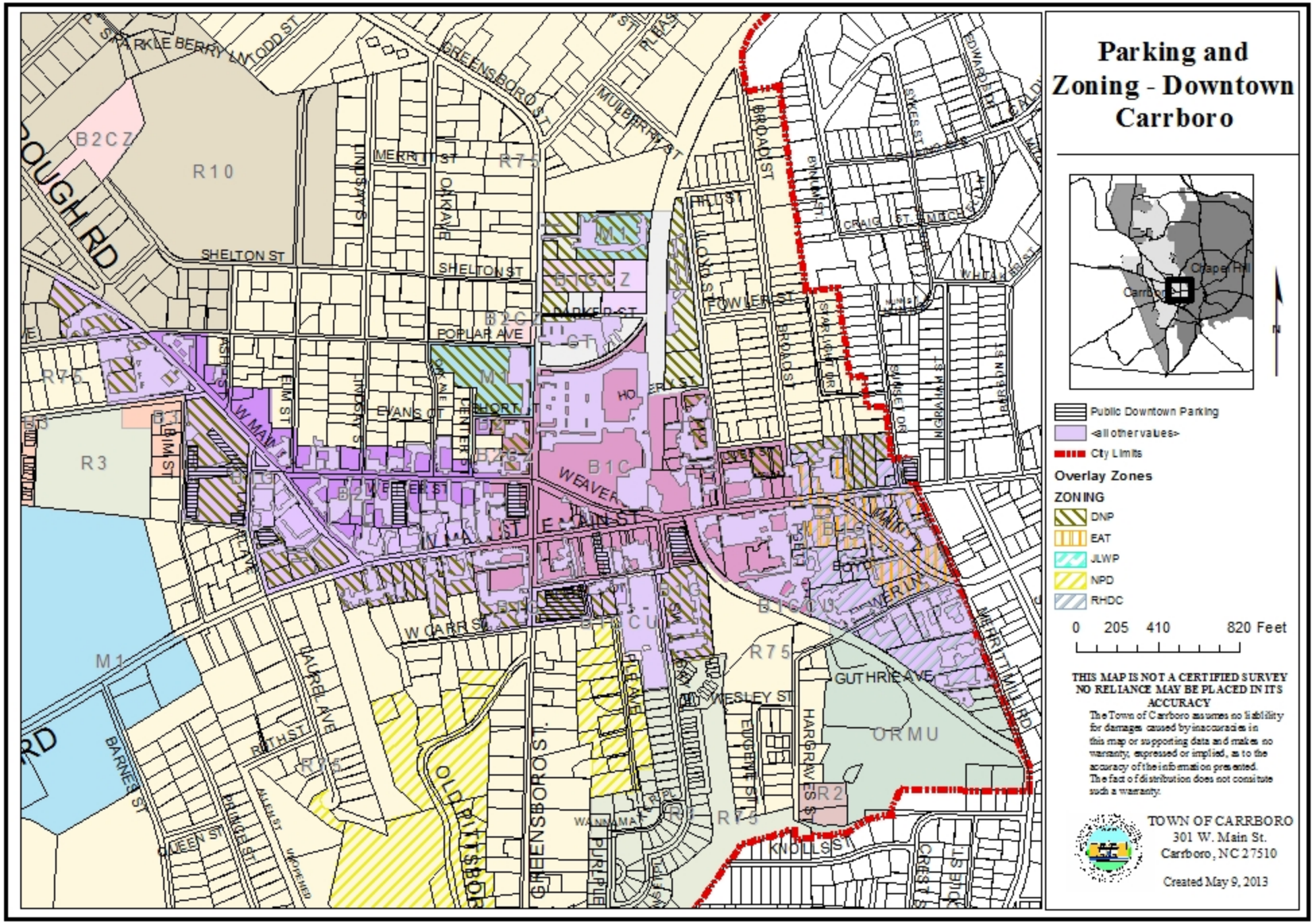
While the term, "unbundling" may be relatively new, studies about parking are not. Staff has compiled and attached a couple of resources that seem particularly relevant to the Board's most recent discussions. In, *Parking Evaluation, Evaluating Parking Problems, Solutions, Costs, and Benefits*, a publication from the Victoria Transport Institute, the author notes, "A problem correctly defined is a problem half solved." As the Board continues to refine its overall parking objective--from the continuum of creating a greater number of parking spaces, to encouraging more consumers to the downtown, to reducing the number of existing parking spaces, to removing automobiles from the downtown and thereby reducing the Town's carbon footprint—it may become easier to frame potential policy changes and LUO text amendments.

Chapel Hill Transit Park and Ride – Charges to Begin August 2013

Budgetary concerns and other program changes led the University of North Carolina at Chapel Hill to establish parking fees for park and ride lots that serve the local transit system. UNC will charge users of its Commuter Alternatives Program a fee based on their annual income. Those with an income less than $25,000 — which includes most UNC students — are to be charged $227. The Chapel Hill Town Council considered the University's actions in March and decided that fees for its town-owned lots would be necessary to keep UNC students and employees from seeking out free lots after the UNC fee was put in place. Drivers using park-and-ride lots owned by the Town of Chapel Hill will pay $250 a year for the privilege starting Aug. 15th. Daily and monthly payment options will also be available.

The Town Council's vote Wednesday aims to keep UNC students and employees from parking in free town lots after UNC levies a similar fee at its lots in August. The money will help pay for Chapel Hill Transit services, too. The Board of Aldermen expressed similar concerns during a discussion of the proposed changes in January 2013. With the establishment of these fees, the only free parking that remains in public parking lots and along some public streets located near Chapel Hill Transit routes in Carrboro. Though parking is time-limited in many lots and along some streets, enforcement has been minimal; the Town may wish to consider how it prioritizes this.

Attachments


Parking and Zoning - Downtown Carrboro
Public Downtown Parking
<all other values>
City Limits
Overlay Zones
ZONING
DNP
EAT
JLWP
NPD
RHDC
0 205 410 820 Feet
THIS MAP IS NOT A CERTIFIED SURVEY
NO RELIANCE MAY BE PLACED IN ITS ACCURACY
The Town of Carrboro assumes no liability for damages caused by inaccuracies in this map or supporting data and makes no warranty, expressed or implied, as to the accuracy of the information presented. The fact of distribution does not constitute such a warranty.
TOWN OF CARRBORO
301 W. Main St.
Carrboro, NC 27510
Created May 9, 2013
SHELTON ST
MERRITT ST
POPLAR AVE
PARKER ST
FOWLER ST
W MAIN ST
E MAIN ST
WEAVER ST
W CARR ST
GUTHRIE AVE
WESLEY ST
KNOLLS ST
GREENSBORO ST.
BROAD ST
OLD PITTSBORO RD
R10
R75
R3
M1
B2CZ
B1C
B1G
B1GCU
ORMU
R2
R15

# ARTICLE XVIII

# PARKING

**Section 15-290 Definitions.**

Unless otherwise specifically provided or unless clearly required by the context, the words and phrases defined below shall have the meaning indicated when used in this section.

(1) **CIRCULATION AREA.** That portion of the vehicle accommodation area used for access to parking or loading areas or other facilities on the lot. Essentially, driveways and other maneuvering areas (other than parking aisles) comprise the circulation area.

(2) **DRIVEWAY**. That portion of the vehicle accommodation area that consists of a travel lane bounded on either side by an area that is not part of the vehicle accommodation area.

(3) **GROSS FLOOR AREA.** The total area of a building measured by taking the outside dimensions of the building at each floor level intended for occupancy or storage.

(4) **LOADING AND UNLOADING AREA**. That portion of the vehicle accommodation area used to satisfy the requirements of Section 15-300.

(5) **PARKING AREA AISLES.** That portion of the vehicle accommodation area consisting of lanes providing access to parking spaces. **(AMENDED 2/4/86)**

(6) **PARKING SPACE**. A portion of the vehicle accommodation area set for the parking of one vehicle.

(7) **VEHICLE ACCOMMODATION AREA**. That portion of a lot that is used by vehicles for access, circulation, parking and loading and unloading. It comprises the total of circulation areas, loading and unloading areas, and parking areas.

(8) **VEHICLE STORAGE AREA.** That portion of a vehicle accommodation area used in connection with a 9.200 or 9.400 classification use as a place to park vehicles temporarily while they are waiting to be worked on or pending the pick-up of such vehicles by their owners.

**Section 15-291 Number of Parking Spaces Required.**

(a) Subject to Section 15-292.1, all developments shall provide a sufficient number of parking spaces to accommodate the number of vehicles that ordinarily are likely to be attracted to the development in question. In addition, all 9.200 and 9.400 classification uses shall provide sufficient vehicle storage area to accommodate the number of vehicles likely to be on the premises awaiting work or pending removal of their owners. **(AMENDED 2/4/86; 5/18/04)**

(b) The presumptions established by this article are that: *(i)* a development must comply with the parking standards set forth in subsection (g) to satisfy the requirement stated in subsection (a), and *(ii)* any development that does meet these standards is in compliance. However, the Table of Parking Standards is only intended to establish a presumption and should be flexibly administered, as provided in Section 15-292.

(c) Uses in the Table of Parking Requirements [subsection (g)], are indicated by a numerical reference keyed to the Table of Permissible Uses, Section 15-146. When determination of the number of parking spaces required by this table results in a requirement of a fractional space, any fraction of one-half or less may be disregarded, while a fraction in excess of one-half shall be counted as one parking space.

(d) With respect to any parking lot that is required to be paved (see Section 15-296): **(AMENDED 9/13/83)**

(1) The number of parking spaces required by this article may be reduced by a total of one space if the developer provides a bikerack or similar device that offers a secure parking area for at least five bicycles.

(2) In non-residential districts, the number of parking spaces required by this article may be reduced by one space for each motorcycle pad provided, up to a total of five percent of the required number of spaces.

(e) Whenever a building is constructed with the intention that it be used in whole or in part for use classification 2.120, 2.220, 2.320, 3.120, or 3.220, the building shall be constructed on the lot in such a manner that sufficient usable space remains on the lot to add the additional parking spaces that would be required to convert the use of the building entirely to use classification 2.110, 2.210, 2.310, 3.110, or 3.210. In addition, whenever a developer proposes to construct a building to be used for purposes that require a lesser number of parking spaces than other uses to which the building might well be put at some future date, the administrator shall send to the developer a certified letter explaining that sufficient space should be left on the lot to add parking spaces at a later time if required. **(AMENDED 2/4/86)**

(f) The Board recognizes that the Table of Parking Requirements set forth in subsection (g) cannot and does not cover every possible situation that may arise. Therefore, in cases not specifically covered, the permit-issuing authority is authorized to determine the parking requirements using this table as a guide. In addition, the Board of Aldermen may authorize a reduction of up to 25 percent in the parking requirement when approving a Village Mixed Use Master Plan or Conditional Use Permit or an Office/Assembly development Conditional Use Permit. Land necessary to meet the full, presumptive, parking requirement must be identified during the plan approval process and must be reserved should the need for additional parking arise in the future**. (AMENDED 05/25/99)**

(g) Table of Parking Requirements **(AMENDED 11/28/06)**

| USE | PART I. PARKING REQUIREMENT (EXCEPT AS NOTED IN PART II OF THIS TABLE) |
|---|---|
| 1.100 | 2 spaces per dwelling unit plus one space per room rented out in each dwelling unit (see Accessory Uses, Section 15-150). These required spaces shall be in addition to any space provided within an enclosed or partially enclosed garage. **(AMENDED 2/24/84; 08/27/96)** |

| USE | PART I.<br>PARKING REQUIREMENT (EXCEPT AS NOTED IN PART II OF THIS TABLE) |
|---|---|
| 1.200 | 2 spaces for each dwelling unit, except that one bedroom units require only one space. |
| 1.300 | With respect to multi-family units located in buildings where each dwelling unit has an entrance and living space on the ground floor, the requirement shall be 1½ spaces for each one bedroom unit and 2 spaces for each unit with two or more bedrooms. Multi-family units limited to persons of low- or moderate-income or the elderly require only 1 space per unit. All other multi-family units require 1 space for each bedroom in each unit plus 1 additional space for every four units in the development. **(AMENDED 5/10/83)** |
| 1.340 | 1 space per every four dwelling units. **(AMENDED 01/11/00)** |
| 1.410<br>1.420 | 1 space for each bedroom. |
| 1.430 | 1 space for each room to be rented. |
| 1.510 | 1 space per room plus additional spaces for restaurant or other facilities. **(AMENDED 11/28/06)** |
| 1.61<br>1.62<br>1.63 | 3 spaces for every five beds except for uses exclusively servicing children under 16, in which case 1 space for every 3 beds shall be required. |
| 1.900 | 4 spaces for offices of physicians or dentists; 2 spaces for attorneys; 1 space for all others. |
| 2.110 | 1 space per 200 square feet of gross floor area. |
| 2.120<br>2.130 | 1 space per 400 square feet of gross floor area. |
| 2.140 | 1 space per 200 square feet of gross floor area plus reservoir lane capacity equal to three spaces per window. **(AMENDED 2/4/86)** |
| 2.150 | 1 space per 200 square feet in the portion of the building to be used for retail sales plus 1 space for every two employees on the maximum shift. **(AMENDED 04/15/97)** |
| 2.210 | 1 space per 200 square feet of gross floor area. **(AMENDED 2/4/86)** |
| 2.220<br>2.230 | 1 space per 400 square feet of gross floor area. |
| 2.240 | 1 space per 200 square feet of gross floor area plus reservoir lane capacity equal to three spaces per window. |

| USE | PART I.<br>PARKING REQUIREMENT (EXCEPT AS NOTED IN PART II OF THIS TABLE) |
|---|---|
| 2.310 | 1 space per 200 square feet of gross floor area. |
| 2.320 | 1 space per 400 square feet of gross floor area. |
| 2.330 | 1 space per 400 square feet of gross floor area. |
| 3.110 | 1 space per 200 square feet of gross floor area. |
| 3.120 | 1 space per 400 square feet of gross floor area. |
| 3.130 | 1 space per 150 square feet of gross floor area. |
| 3.150 | 1 space per 200 square feet of ground floor area. **(AMENDED 06/20/95)** |
| 3.210 | 1 space per 200 square feet of gross floor area. |
| 3.220 | 1 space per 400 square feet of gross floor area. |
| 3.230 | 1 space per 200 square feet of area within main building plus reservoir lane capacity equal to five spaces per window (10 spaces if window serves two stations). |
| 3.250 | 3 spaces arranged in close proximity to this use. **(AMENDED 09/01/92)** |
| 4.100<br>4.200 | 1 space for every two employees on the maximum shift except that in the B-1-G, B-2, B-3, and B-4 zones, such uses may provide 1 space per 200 square feet of gross floor area. |
| 5.110 | 1.75 spaces per classroom in elementary schools<br>5.0 spaces per classroom in high schools. |
| 5.120 | 1 space per 100 square feet of gross floor area. |
| 5.130 | 1 space per 150 square feet of gross floor area. |
| 5.200 | 1 space per every four seats in the portion of the church building to be used for services plus spaces for any residential use as determined in accordance with the parking requirements set forth above for residential uses, plus 1 space for every 200 square feet of gross floor area designed to be used neither for services nor residential purposes. |
| 5.310<br>5.320 | 1 space per 300 square feet of gross floor area. |
| 5.400 | 1 space per 300 square feet of gross floor area. |
| 6.110 | 1 space for every 3 persons that the facilities are designed to accommodate when fully utilized (if they can be measured in such a fashion -- example tennis courts or bowling alleys) plus 1 space per 200 square feet of gross floor area used in a manner not susceptible to such calculation. |
| 6.120 | 1 space for every four seats. |

| USE | PART I.<br>PARKING REQUIREMENT (EXCEPT AS NOTED IN PART II OF THIS TABLE) |
|---|---|
| 6.130 | |
| 6.140 | 1 space for every 200 square feet of gross floor area within enclosed buildings **(AMENDED 2/2/88)** |
| 6.210<br>6.220 | 1 space per 200 square feet of area within enclosed buildings, plus 1 space for every 3 persons that the outdoor facilities are designed to accommodate when used to the maximum capacity. |
| 6.230 | Miniature golf course – 1 space per 300 square feet of golf course area plus 1 space per 200 square feet of building gross floor area; Driving range -- 1 space per tee plus 1 space per 200 square feet in building gross floor area; Par Three Course -- 2 spaces per golf hole plus 1 space per 200 square feet of building gross floor area. |
| 6.240 | 1 space per horse that could be kept at the stable when occupied to maximum capacity. |
| 6.250 | 1 space for every three seats. |
| 6.260 | 1 space per speaker outlet. |
| 7.100 | 2 spaces per bed. |
| 7.200 | 3 spaces for every 5 beds |
| 7.300<br>7.400 | 1 space for every two employees on maximum shift. |
| 8.100 | 1 space per 100 square feet of gross floor area. **(AMENDED 2/24/87)** |
| 8.200 | 1 space for every four outside seats. **(AMENDED 2/24/87)** |
| 8.300 | 1 space for each drive-in service spot. **(AMENDED 2/24/87)** |
| 8.400 | Reservoir lane capacity equal to five spaces per drive-in window. **(AMENDED 2/24/87)** |
| 8.500 | Spaces to be determined according to projected level of carry-out service. **(AMENDED 2/24/87)** |
| 8.600 | 1 space per 200 square feet of floor area plus one space per employee engaged in delivery service. **(AMENDED 2/24/87)** |
| 9.100 | 1 space per 200 square feet of gross floor area plus an extra 810 square foot vehicle storage area per repair bay. |
| 9.200 | 2 regular spaces per bay plus a 1,540 square foot vehicle storage area per bay. **(AMENDED 2/4/86)** |
| 9.300 | 1 space per 200 square feet of gross floor area of building devoted primarily to gas |

| USE | PART I.<br>PARKING REQUIREMENT (EXCEPT AS NOTED IN PART II OF THIS TABLE) |
|---|---|
| | sales operation; plus sufficient parking area to accommodate 2 vehicles per pump without interfering with other parking spaces. |
| 9.400 | 2 regular spaces per bay and office plus an 810 square foot vehicle storage area per bay. **(AMENDED 2/4/86, 10/20/92)** |
| 9.500 | Conveyer type--1 space for every three employees on the maximum shift plus reservoir capacity equal to five times the capacity of the washing operation. Self-service type--2 spaces for drying and cleaning purposes per stall plus two reservoir spaces in front of each stall. |
| 10.210<br>10.220 | 1 space for every two employees on the maximum shift but not less than 1 space per 5,000 square feet of area devoted to storage (whether inside or outside). |
| 11.000 | 1 space per 200 square feet of gross floor area. |
| 12.100<br>12.200 | 1 space per 200 square feet of gross floor area. |
| 13.100<br>13.200<br>13.300<br>13.400 | 1 space per 200 square feet of gross floor area. |
| 14.100<br>14.200<br>14.300<br>14.400 | 1 space for every 2 employees on maximum shift. |
| 15.100<br>15.200 | 1 space per 200 square feet of gross floor area. |
| 15.300 | 1 space for every 2 employees on maximum shift. |
| 15.400 | 1 space per 100 square feet of gross floor area. |
| 15.500 | 1 space per 400 square feet of gross floor area of the collection facility plus 1 space per employee or attendant. **(AMENDED 6/28/83)** |
| 16.100 | 1 space per 200 square feet of gross floor area plus reservoir lane capacity equal to three spaces per window. |
| 16.200 | 1 space per 200 square feet of gross floor area. |
| 19.000 | 1 space per 1,000 square feet of lot area used for storage, display, or sales. **(AMENDED 5/12/81)** |
| 20.000<br>21.000 | 1 space per 200 square feet of gross floor area. |
| 22.000 | 1 space for every employee plus 1 space per 250 square feet of floor area used for day |

| USE | PART I.<br>PARKING REQUIREMENT (EXCEPT AS NOTED IN PART II OF THIS TABLE) |
|---|---|
| | care in addition to spaces for any residential use as determined in accordance with the parking requirements set forth above for residential uses. |
| 23.000 | 1 space per 200 square feet of gross floor area.<br>1 space per room plus additional space for restaurant or other facilities. |
| 34.000<br>34.100<br>34.200 | 1 space per room plus additional spaces for restaurant or other facilities.<br>2 spaces per main dwelling unit plus 1 space per room. **(AMENDED 06/22/99; 11/28/06)** |
| | **PART II. (APPLIES TO PROPERTIES LOCATED WITHIN THE B-1(C), B-1(G), AND B-2 ZONING DISTRICTS** |
| **USE** | **PARKING REQUIREMENT** |
| 1.100<br>1.200<br>1.300 | 1 per bedroom and no more than 2<br>1 per bedroom and no more than 2<br>1 per bedroom and no more than 2 |
| 1.500 | .75 per room (Note: This does not include parking for associated conference and/or restaurant facilities.) |
| 2.000<br>3.000 | 1 per 300 square feet of gross floor area<br>1 per 400 square feet of gross floor area |

**(AMENDED 02/04/97; 01/11/00; 5/18/04)**

(h) Bicycle parking shall be provided in accordance with the provisions of this subsection by all developments that fall within the use classifications shown in the following Table of Bicycle Parking Standards.

When determination of the number of spaces required by this table results in a requirement of a fractional space, any fraction of one-half or less shall be disregarded, while a fraction in excess of one-half shall be counted as one space.

| **Table of Bicycle Parking Standards** | |
|---|---|
| **Use** | **Bicycle Parking Requirement** |
| 1.300 | 1.5 spaces per unit |
| 2.100<br>2.200<br>2.300 | 1 space per 10 presumptively required auto spaces, with a minimum of 5 spaces |
| 3.100<br>3.200 | 1 space per 10 presumptively required auto spaces, with a minimum of 5 spaces |
| 5.100 | 1 space per 10 students plus 1 space per 10 employees |
| 6.200 | 1 space per 4 presumptively required auto spaces |
| 8.100 | 1 space per 10 presumptively required auto spaces, with a minimum of 5 spaces |

| | |
|---|---|
| 8.200 | |
| 10.100 | 1 space per 10 auto spaces, with a minimum of 5 spaces |
| 34.100 | 1 space per 5 rooms, up to 50 rooms; 1 space per 10 rooms above 50 rooms |

**(AMENDED 6/19/12)**

## Section 15-292 Flexibility in Administration Required

(a) The Board recognizes that due to the particularities of any given development, the inflexible application of the parking standards set forth in Subsection 15-291(g) may result in a development either with inadequate parking space or parking space far in excess of its needs. The former situation may lead to traffic congestion or parking violations in adjacent streets as well as unauthorized parking in nearby private lots. The latter situation results in a waste of money as well as a waste of space that could more desirably be used for valuable development or environmentally useful open space. Therefore, as suggested in Section 15-191, the permit-issuing authority may permit deviations from the presumptive requirements of Subsection 15-291(g) and may require more parking or allow less parking whenever it finds that such deviations are more likely to satisfy the standard set forth in subsection 15-291(a). In addition, that same flexible approach shall be followed with respect to the vehicle storage area requirements set forth in the preceding table.

(b) Without limiting the generality of the foregoing, the permit-issuing authority may allow deviations from the parking requirements set forth in Subsection 15-291(g) when it finds that:

(1) A residential development is irrevocably oriented toward the elderly;

(2) A residential development is located on a bus line, is located in close proximity to the central business district, and is committed to a policy of placing restrictions on the vehicle ownership of its tenants.

(3) A business is primarily oriented to walk-in trade.

(c) Whenever the permit-issuing authority allows or requires a deviation from the presumptive parking requirements set forth in Subsection 15-291(g), it shall enter on the face of the permit the parking requirement that it imposes and the reasons for allowing or requiring the deviation.

(d) If the permit-issuing authority concludes, based upon information it receives in the consideration of a specific development proposal, that the presumption established by Subsection 15-291(g) for a particular use classification is erroneous, it shall initiate a request for an amendment to the Table of Parking Requirements in accordance with the procedures set forth in Article XX.

## Section 15-292.1 Payment of Fee In Lieu of Providing Parking Spaces

(a) With respect to properties within the B-1(C), B-1(G), and B-2 districts that are developed for commercial purposes, the permit issuing authority may authorize the developer to fore-

go the construction of parking spaces otherwise required on the developer's property pursuant to the provisions of Section 15-291 of this Article for commercial uses if (i) the permit issuing authority finds that the parking needs of such development can be met by public parking facilities that are located or expected to be constructed within a reasonable time within reasonable proximity to the proposed development, and (ii) the developer pays to the town for each such space that is not constructed a fee in lieu of providing that space in an amount determined as provided in subsection (b) of this section. This fee shall be paid before an occupancy permit is issued to the development, unless the permit issuing authority by condition establishes another time.

(b) The amount of the fee authorized by this section shall be determined by estimating the cost of providing a paved parking space (including land and improvement costs) that meets the requirements of this Article. This determination shall be made annually and the fee shall be included in the Miscellaneous Fees and Charges Schedule adopted by the Board of Aldermen.

(c) Any fees collected in accordance with this section shall be reserved and used exclusively to meet the purposes for which they have been obtained as specified above in subsection (a).

**Section 15-293 Parking Space Dimensions (AMENDED 9/13/83)**

(a) Subject to subsection (b) and (c), parking spaces shall contain a rectangular area at least eight and one-half feet wide and eighteen feet long. Lines demarcating parking spaces may be drawn at various angles in relation to curbs or aisles, as long as the parking spaces so created contain within them the rectangular area required by this section. **(AMENDED 2/5/08)**

(b) In parking areas containing ten or more spaces, up to 40% of the parking spaces may be set aside for the exclusive use of compact cars, provided the compact car area is designated for exclusive use by compact cars, and that adequate signs are provided designating and informing the public of the exclusive use. A compact parking space shall contain a rectangular area eight feet wide and fifteen feet long. **(AMENDED 4/24/12)**

(c) Wherever parking consists of spaces set aside for parallel parking, one foot shall be added to the minimum required width, and three feet to the minimum required length.

(d) Motorcycle pads shall contain a rectangular area at least four feet wide and eight feet long. Spaces shall be located at either end of parking aisles and shall have, centered, a concrete or metal strip one square foot in area to accommodate the use of kick stands.

**Section 15-294 Required Width of Parking Area Aisles (AMENDED 5/18/04)**

(a) Subject to subsections (b) and (c) parking area aisles shall have a minimum width between parking spaces as follows: **(AMENDED 6/26/84)**

| | STANDARD, OR NON-SUBCOMPACT AREA PARKING ANGLE | | | |
|---|---|---|---|---|
| **AISLE TYPE** | **0°** | **45°** | **60°** | **90°** |
| **ONE WAY** | 13 | 13 | 18 | 24 |
| **TWO WAY** | 19 | 21 | 23 | 24 |

(b) In parking areas where subcompact spaces are provided pursuant to 15-293(b) of this ordinance, parking aisle spaces adjoining subcompact spaces shall have a minimum width between such parking spaces as follows:

| | STANDARD AREA PARKING ANGLE | | | |
|---|---|---|---|---|
| **AISLE TYPE** | **0°** | **45°** | **60°** | **90°** |
| **ONE WAY** | 13 | 13 | 14 | 20 |
| **TWO WAY** | 19 | 21 | 23 | 24 |

(c) The width of a parking aisle serving $90^{o}$ angle parking may be reduced to eighteen feet if *(i)* not more than ten spaces are to be served by an aisle with such reduced width, and *(ii)* the aisle "dead ends", i.e., is not used as an access way to other areas. **(AMENDED 6/26/84)**

(d) Driveways shall be not less than ten feet in width for one way traffic and eighteen feet in width for two way traffic, except that ten foot wide driveways are permissible for two way traffic when *(i)* the driveway is not longer than fifty feet, *(ii)* it provides access to not more than ten spaces, and *(iii)* sufficient turning space is provided so that vehicles need not back into a public street. **(AMENDED 6/26/84)**

(e) Notwithstanding the other provisions of this section, the permit issuing authority may allow the use of geometric standards other that those specified in this section if the permit issuing authority finds that (i) the plans for the vehicle accommodation area are sealed by a registered engineer with recognized expertise in parking facility design, and (ii) the alternative design will satisfy off-street parking requirements as adequately as would a facility using the specifications set forth in this section and would otherwise be consistent with public safety.

**Section 15-295 General Design Requirements (AMENDED 5/18/04)**

(a) Vehicle accommodation areas shall be designed so that, without resorting to extraordinary movements, vehicles may exit such areas without backing onto a public street. This requirement does not apply to parking areas consisting of driveways that serve one or two dwelling units.

(b) Every vehicle accommodation area shall be designed so that vehicles cannot extend beyond the perimeter of such area onto adjacent properties or public rights-of-way. Such areas shall also be designed so that vehicles do not extend over sidewalks or tend to bump against or damage any wall, vegetation, or other obstruction.

(c) Circulation areas shall be designed so that vehicles can proceed safely without posing a danger to pedestrians or other vehicles and without interfering with parking areas.

(d) Vehicle storage areas are not required to observe any particular configuration but shall be so located and designed so that the entire amount of required square footage of such areas can be used for the purpose intended without creating any substantial danger of injury to persons or property and without impeding vehicular movement in the adjacent street. **(AMENDED 2/4/86)**

(e) To the extent practicable, parking shall not be allowed between a building façade and a street right-of-way in the B-1(c), B-1(g), and B-2 zoning districts.

**Section 15-295.1 Design Standards for Bicycle Parking (AMENDED 6/19/12)**

(a) Bicycle parking may be located in any parking area or in other locations that are easily accessible, clearly visible from the entrance it serves, and do not impede pedestrian or motorized vehicle movement into or around the site. At least 50 percent of bicycle parking shall be sheltered. Designating space for bicycle parking within buildings is an option to consider when feasible.

(b) When a percentage of the required motorized vehicle spaces are provided in a structure, an equal percentage of the required bicycle spaces shall be located inside that structure, unless an equivalent number of other accessible covered bicycle parking spaces are located elsewhere on the site.

(c) Where bicycle parking facilities are not clearly visible to approaching cyclists, signs shall be posted to direct cyclists to the facilities.

(d) Facilities shall provide at least a 30 inch clearance from the centerline of each adjacent bicycle rack/support structure and at least 24 inches from walls or other obstructions.

(e) An aisle or other space shall be provided for bicycles to enter and leave the facility. The aisle shall have a width of at least four feet to the front or the rear of a standard six-foot bicycle parked in the facility.

(f) Each bicycle parking space shall be sufficient to accommodate a bicycle at least six feet in length and two feet wide. Overhead clearance shall be at least seven feet.

(g) Bicycle parking spaces shall be clearly marked as such and shall be separated from motorized vehicle parking by some form of physical barrier designed to protect a bicycle from being hit by a motorized vehicle.

(h) Each bicycle parking space shall be provided with some form of stable frame permanently anchored to a foundation to which a bicycle frame and both wheels may be conveniently secured using either a chain and padlock or a U-lock. The frame shall support a bicycle in a stable position without damage to the frame, wheels, or components. The rack designs commonly known as "inverted U", "A", and "post-and-loop" are preferred types. The "wave", "toast", and "comb" racks, as described in Chapter 7, Figure 7-60, of the Comprehensive Bicycle Transportation Plan, are discouraged.

(i) Bicycle racks should be designed and constructed according to Design Guidelines of the Carrboro Bicycle Plan.

**Section 15-296 Vehicle Accommodation Area Surfaces**

(a) Subject to subsections (e), (f), (g), *and (h)* vehicle accommodation areas that (i) include lanes for drive-in windows*; (ii)* are required to contain more than 1,000 square feet of vehicle storage area; or *(iii)* contain parking areas that are required to have more than ten parking spaces and that are used regularly at least five days per week shall be graded and surfaced with asphalt, concrete or other material that will provide equivalent protection against potholes, erosion, and dust. Specifications for surfaces meeting the standard set forth in this subsection are contained in Appendix D. **(AMENDED 2/4/86; 3/4/86; 6/26/90; 5/6/03)**

(b) Vehicle accommodation areas that are not provided with the type of surface specified in subsection (a) shall be graded and surfaced with crushed stone, gravel, or other suitable material (as provided in the specifications set forth in Appendix D) to provide a surface that is stable and will help to reduce dust and erosion. The perimeter of such parking areas shall be defined by bricks, stones, railroad ties, or other similar devices. In addition, whenever such a vehicle accommodation area abuts a paved street, the driveway leading from such street to such area (or, if there is no driveway, the portion of the vehicle accommodation area that opens onto such streets), shall be paved as provided in subsection (a) for a distance of fifteen feet back from the edge of the paved street. This subsection shall not apply to single-family residences, duplexes, multi-family residences consisting of two dwelling units, homes for the handicapped or infirm, or other uses that are required to have only one or two parking spaces.

(c) Parking spaces in areas surfaced in accordance with subsection (a) shall be appropriately demarcated with painted lines or other markings. Parking spaces in areas surfaced in accordance with subsection (b) shall be demarcated whenever practicable.

(d) Vehicle accommodation areas shall be properly maintained in all respects. In particular, and without limiting the foregoing, vehicle accommodation area surfaces shall be kept in good

condition (free from potholes, etc.) and parking space lines or markings shall be kept clearly visible and distinct.

(e) Vehicle accommodation areas that constitute 10.100 classification uses (independent automobile parking lots or garages) and that contain more than ten parking spaces shall meet the surfacing requirements set forth in subsection (a) unless it clearly appears that the 10.100 classification use is intended to be temporary (not exceeding four years). In no event may the 10.100 use continue for more than four years unless the lot is paved in accordance with this subsection. Notwithstanding the provisions of Article VIII (Nonconforming Situations), *(i)* any parking lot made nonconforming by this subsection on its effective date shall be brought into compliance within twelve months after the effective date, and *(ii)* unpaved temporary 10.100 uses in operation on the effective date of this subsection must be paved or terminated within one year thereafter or four years from the initial use of such lot, whichever comes later. **(AMENDED 3/11/86)**

(f) The paving requirement of subsection (a) shall not apply to parking areas owned or leased by the town that are used for public parking for a period of time less than four years. If such areas are used for parking for a period in excess of four years, then such areas must be paved if otherwise required under the standards set forth in subsection (a). **(AMENDED 3/4/86)**

(g) The paving requirement of subsection (a) shall not apply to any lot within the B-1(c) zoning district. However, lots that would otherwise be required to be paved but for this exception shall be required to comply with the shading provisions set out in Subsection 15-317. **(AMENDED 6/26/90)**

(h) When any tract of land is developed under circumstances requiring the issuance of a special or conditional use permit, and paving is required per Section 15-296(a), the vehicle overhang area located behind a parking stop may be unpaved as shown in Appendix D-3. **(AMENDED 5/6/03)**

**Section 15-297 Joint Use of Required Parking Spaces (AMENDED 5/18/04)**

(a) One parking area may contain required spaces for several different uses, but except as otherwise provided in this section, the required space assigned to one use may not be credited to any other use.

(b) To the extent that developments that wish to make joint use of the same parking spaces operate at different times, the same spaces may be credited to both uses. For example, if a parking lot is used in connection with an office building on Monday through Friday but is generally 90% vacant on weekends, another development that operates only on weekends could be credited with 90% of the spaces on that lot. Or, if a church parking lot is generally occupied only to 50% of capacity on days other than Sunday, another development could make use of 50% of the church lot's spaces on those other days.

(c) With respect to properties within the B-1(c), B-1(g), and B-2 districts where two or more use classifications on the same site have two or more distinct peak parking usage periods, the number of parking spaces required may be reduced to the amount that results from dividing the total number of spaces otherwise required by the following ratios:

| Use Classifications | Reduction Ratio |
|---|---|
| 2.000 and 3.000 uses | 1.2 |
| 2.000 and 1.500 uses | 1.3 |
| 2.000 and 1.100/1.200/1.300 uses | 1.2 |
| 3.000 and 1.500 uses | 1.7 |
| 3.000 and 1.100/1.200/1.300 | 1.4 |
| 1.500 and 1.100/1.200/1.300 | 1.1 |

(d) If the joint use of the same parking spaces by two or more principal uses involves satellite parking spaces, then the provisions of Section 15-298 are also applicable.

**Section 15-297.1 Creation of Public Parking Lots from Private Parking Areas (AMENDMENT 4/15/03)**

Notwithstanding any other provision of this chapter, within the B-1(c) and B-1(g) zoning districts:

(1) The town may acquire through lease or purchase portions of one or more lots and create out of the area so acquired an independent parking lot (use classification 10.100);

(2) Acquisition by the town and use of portions of lots as provided in this section shall not be regarded as creating a non-conforming situation with respect to parking on such lots or making any existing situation more non-conforming with respect to parking.

(3) When the town acquires and uses portions of lots as provided in this section, the number of spaces within the public parking lot so created that are attributable to the portion of the parking lot acquired from each "donor" lot shall be regarded as still being located on each "donor" lot for purposes of determining whether each "donor" lot complies with the parking requirements of this article.

**Section 15-298 Satellite Parking**

(a) If the number of off-street parking spaces required by this chapter cannot reasonably be provided on the same lot where the principal use associated with these parking spaces is located, then spaces may be provided on adjacent or nearby lots in accordance with the provisions of this section. These off- site spaces are referred to in this section as "satellite" parking spaces.

(b) All such satellite parking spaces (except spaces intended for employee use) must be located within 400 feet of a public entrance of a principal building housing the use associated with such parking, or within 400 feet of the lot on which the use associated with such parking is located if the use is not housed within any principal building. Satellite parking spaces intended for employee use may be located within any reasonable distance.

(c) The developer wishing to take advantage of the provisions of this section must present satisfactory written evidence that he has the permission of the owner or other person in charge of the satellite parking spaces to use such spaces. The developer must also sign an acknowledgment that the continuing validity of his permit depends upon his continuing ability to provide the requisite number or parking spaces.

(d) Subject to subsection (e), persons who obtain satellite parking spaces in accordance with this section shall not be held accountable for ensuring that the satellite parking areas from which they obtain their spaces satisfy the design requirements of this article. **(AMENDED 3/11/86)**

(e) Satellite parking may be obtained from an independent automobile parking lot or garage [use classification 10.100, see definition subdivision 15-15(32.1)]. However, if a separate lot is owned by an enterprise needing off-site parking and is leased by that enterprise for a period of more than four years (including automatic renewals or renewal options) and is used as a parking lot by that enterprise (and others may lawfully be excluded), then such off-site lot shall be regarded as part of the lot on which the enterprise is located for purposes of the paving and other design requirements of this chapter. **(AMENDED 3/11/86)**

**Section 15-299 Special Provisions for Lots With Existing Buildings and Lots within Neighborhood Preservation Districts (AMENDED 9/26/89)**

(a) Notwithstanding any other provisions of this chapter, whenever *(i)* there exists a lot with one or more structures on it constructed before the effective date of this chapter, and *(ii)* a change in use that does not involve any enlargement of a structure is proposed for such lot, and *(iii)* the parking requirements of Section 15-291 that would be applicable as a result of the proposed change cannot be satisfied on such lot because there is not sufficient area available on the lot that can practicably be used

for parking, then the developer need only comply with the requirements of Section 15-291 to the extent that *(i)* parking space is practicably available on the lot where the development is located, and *(ii)* satellite parking space is reasonably available as provided in Section 15-298. However, if satellite parking subsequently becomes reasonably available, then it shall be a continuing condition of the permit authorizing development on such lot that the developer obtain satellite parking when it does become available.

(b) Whenever the neighborhood preservation district commission determines that the number of parking spaces otherwise required by this article for a development within the neighborhood preservation district would render such development incongruous with the special character of the district, it may recommend that the permit-issuing authority wholly or partially waive such parking requirements. Upon such recommendation, the permit-issuing authority may authorize a lesser number of parking spaces than that presumptively required under this article if it concludes that such deviation *(i)* will not create problems due to increased on-street parking and *(ii)* will not constitute a threat to public safety. **(AMENDED 09/26/89)**

**Section 15-300 Loading and Unloading Areas.**

(a) Whenever the normal operation of any development requires that goods, merchandise, or equipment be routinely delivered to or shipped from that development, a sufficient off-street loading and unloading area must be provided in accordance with this section to accommodate the delivery or shipment operations in a safe and convenient manner.

(b) The loading and unloading area must be of sufficient size to accommodate the numbers and types of vehicles that are likely to use this area, given the nature of the development in question. The following table indicates the number and size of spaces that, presumptively, satisfy the standard set forth in this subsection. However, the permit-issuing authority may require more or less loading and unloading area if reasonably necessary to satisfy the foregoing standard.

| GROSS LEASABLE AREA OF BUILDING | NUMBER OF SPACES WITH MINIMUM DIMENSIONS OF 12' x 55' AND OVERHEAD CLEARANCE OF 14' FROM THE STREET GRADE |
|---|---|
| 1,000 - 19,999 | 1 |
| 20,000 - 79,999 | 2 |
| 80,000 - 127,999 | 3 |
| 128,000 - 191,999 | 4 |
| 192,000 - 255,999 | 5 |
| 256,000 - 319,999 | 6 |
| 320,000 - 391,999 | 7 |
| **Plus one (1) for each additional 72,000 square feet or fraction thereof.** | |

(c) Loading and unloading areas shall be so located and designed that the vehicles intended to use them can *(i)* maneuver safely and conveniently to and from a public right-of-way, and *(ii)* complete the loading and unloading operations without obstructing or interfering with any public right-of-way or any parking space or parking lot aisle.

(d) No area allocated to loading and unloading facilities may be used to satisfy the area requirements for off-street parking, nor shall any portion of any off-street parking area be used to satisfy the area requirements for loading and unloading facilities.

**Section 15-301 No Parking Indicated Near Fire Hydrants.**

Whenever a fire hydrant is located adjacent to any portion of a vehicle accommodation area required to be paved under subsection 15-296(a), the pavement shall be clearly marked to indicate that parking within fifteen feet of such hydrant is prohibited. **(AMENDED 4/27/82)**

**Section 15-302 Limitation on the Total Lot Coverage Devoted to Surface Parking**

No development approved after the effective date of this section may construct more than 110 percent of the number of parking spaces determined by the permit issuing authority to be necessary to satisfy the requirements of Section 15-291.

**Section 15-303 Reserved.**

**Parking information**

**Definitions of unbundling**

Donald Shoup, *The High Cost of Free Parking* (pp. 559-560):

> ...the cost of parking is usually bundled into the prices for everything else, and most people drive wherever they go. If cities remove these requirements, developers will be able to provide as few parking spaces as they choose. Some existing spaces will disappear as developers build infill projects on parking lots no longer required by law. Adaptive reuse of older buildings will also become less problematic because cities will no longer require property owners to provide additional parking spaces for new uses.
>
> ...Unbundling will also lead to an increase in shared parking because everyone who is willing to pay for the parking can use it. In contrast, required parking is typically *not* shared since each specific site must provide its own spaces. Moreover, businesses that have paid dearly to provide their own parking are not eager to let their competitors' customers use it. The growth of paid, shared parking will therefore allow a smaller parking supply to serve more trips, while the higher price of parking will increase travel by carpools, transit, biking, and walking. Removing off-street parking requirements will slowly but surely lead to shared parking, higher urban density, and a shift away from solo driving.

Todd Litman, Spring 2013 ITE Newsletter:

> **Unbundling.** Parking is rented separately from building space. For example, instead of paying $2,000 per month for an apartment that includes two parking spaces, occupants pay $1,800 per month for the apartment and $100 per for each space, and so only pay for the parking they use.

From San Francisco's Municipal Code:

> **SEC. 167. PARKING COSTS SEPARATED FROM HOUSING COSTS IN NEW RESIDENTIAL BUILDINGS.**
>
> (a) All off-street parking spaces accessory to residential uses in new structures of 10 dwelling units or more, or in new conversions of non-residential buildings to residential use of 10 dwelling units or more, shall be leased or sold separately from the rental or purchase fees for dwelling units for the life of the dwelling units, such that potential renters or buyers have the option of renting or buying a residential unit at a price lower than would be the case if there were a single price for both the residential unit and the parking space. In cases where there are fewer parking spaces than dwelling units, the parking spaces shall be offered first to the potential owners or renters of three-bedroom or more units, second to the owners or renters of two bedroom units, and then to the owners or renters of other units. Renters or buyers of on-site inclusionary affordable units provided pursuant to Section 315 shall have an equal opportunity to rent or buy a parking space on the same terms and conditions as offered to renters or buyers of other dwelling units, and at a price determined by the Mayor's Office of Housing, subject to procedures adopted by the Planning Commission notwithstanding any other provision of Section 315 *et seq.*

(b) **Exception.** The Planning Commission may grant an exception from this requirement for projects which include financing for affordable housing that requires that costs for parking and housing be bundled together.

**Prohibiting overnight parking in municipal lots – suggested Town Code revision**

Sec. 6-19(a)(4) is amended as follows:

> Parking for Not More Than Two Hours, Between 7:00 a.m. and 5:30 p.m., and Between 2:00 a.m. and 6:00 a.m.

**LUO 15-291(e)**

(e) Whenever a building is constructed with the intention that it be used in whole or in part for use classification 2.120, 2.220, 2.320, 3.120, or 3.220, the building shall be constructed on the lot in such a manner that sufficient usable space remains on the lot to add the additional parking spaces that would be required to convert the use of the building entirely to use classification 2.110, 2.210, 2.310, 3.110, or 3.210. In addition, whenever a developer proposes to construct a building to be used for purposes that require a lesser number of parking spaces than other uses to which the building might well be put at some future date, the administrator shall send to the developer a certified letter explaining that sufficient space should be left on the lot to add parking spaces at a later time if required.

**Section 15-292.1 Payment of Fee In Lieu of Providing Parking Spaces**

(a) With respect to properties within the B-1(C), B-1(G), and B-2 districts that are devel-oped for commercial purposes, the permit issuing authority may authorize the developer to fore-

go the construction of parking spaces otherwise required on the developer's property pursuant to the provisions of Section 15-291 of this Article for commercial uses if (i) the permit issuing au-thority finds that the parking needs of such development can be met by public parking facilities that are located or expected to be constructed within a reasonable time within reasonable proxim-ity to the proposed development, and (ii) the developer pays to the town for each such space that is not constructed a fee in lieu of providing that space in an amount determined as provided in subsection (b) of this section. This fee shall be paid before an occupancy permit is issued to the development, unless the permit issuing authority by condition establishes another time.

(b) The amount of the fee authorized by this section shall be determined by estimating the cost of providing a paved parking space (including land and improvement costs) that meets the requirements of this Article. This determination shall be made annually and the fee shall be included in the Miscellaneous Fees and Charges Schedule adopted by the Board of Aldermen.

(c) Any fees collected in accordance with this section shall be reserved and used exclu-sively to meet the purposes for which they have been obtained as specified above in subsection (a).

| Land use category | Land use* | CARRBORO | | Charlottesville, VA | | | |
|---|---|---|---|---|---|---|---|
| | | General | Downtown | General | Urban Core Zone | Corner Parking Zone | Parking Modified Zone |
| **Residential** | Single-family residential | 2/DU (+ 1/rented room) | 1/BR max 2 | 1/DU | *No parking requirements (1)* | *No parking requirements (1)* | 1/DU<br>No req. for affordable units |
| | Two-family residential | 2/DU<br>1/DU for 1BR | 1/BR max 2 | 1/DU | | | |
| | Multi-family residential | 1/BR + 1/4DU<br>1.5/1BR unit<br>2/2+BR unit (ground fl.)<br>1/DU (low income, senior) | 1/BR max 2 | 1/Studio<br>1/1BR unit<br>1/2BR unit<br>2/3BR unit<br>2/4BR unit | | | |
| | Group care/congregate living facility | 3/5 beds | | 1 per 3 or 4 beds + 1/empl. | | | |
| | Shelter | 3/5 beds # | | Min. 2 + 1/empl. | | | |
| | Boarding/rooming house | 1/4DU | | 0.3/BR | | | |
| **Commercial**<br><br>*Denominator is sq. ft. unless otherwise noted* | General retail | | | 3.5/1000<br>(1/285) | | | *50% of otherwise required parking* |
| | [Various retail uses] | | | Low: 1/1000<br>High: 1/250 | | | |
| | High traffic retail | 1/200 | | | | | |
| | Low traffic retail | 1/400 | 1/300 | | | | |
| | General office | | | 1/500 | | | |
| | Office serving customers/clients | 1/200 | | | | | |
| | Office - few customers/clients | 1/400 | 1/400 | | | | |
| | Restaurant | 1/100 + 1/4 outside seats | | 1/250 (general)<br>1/125 + 1/400 non-seating (drive-in w/seats)<br>1/60 (drive-in w/o seats) | | | |
| | Bar/club | same as restaurant | | unknown | | | |
| | Bank | 1/200 + drive-thru window storage | | 3.5/1000<br>(1/285) | | | |
| | Theatre/movie theatre | 1/4 seats | | 1/6 seats<br>1/200 (if no seats) | | | |
| | Motor vehicle service | 2/bay + storage area/bay | | 3/bay | | | |
| | Clinic/medical | 1/150 | | 1/200# +<br>3/exam room +<br>1/empl. | | | |
| | Health club/gym | 1/3 expected users + 1/200 | | 1/4 exp. Users | | | |

| Land use category | Land use* | CARRBORO | | Charlottesville, VA | | | |
|---|---|---|---|---|---|---|---|
| | | General | Downtown | General | Urban Core Zone | Corner Parking Zone | Parking Modified Zone |
| | Manufacturing/industrial | 1/2 empl.<br>1/200 in B-1G, B2, B3, B4 | | 1/2 empl. + 1/400 office space | | | |
| | Hotel/motel/inn | 1/room + restaurant space | 0.75/room + restaurant | 1/room + restaurant space | | | |
| Institutional | Elementary or middle school | 1.75/classroom | | 1/classroom | | | |
| | High/secondary school | 5 per classroom | | 1/empl. + 1/5 students | | | |
| | Day care | 1/empl. + 1/250 | | 1/1.5 empl.<br>(0.67/empl.) | | | |
| | Place of assembly | 1/300 | | 1/6 seats<br>1/200 (if no seats) | | | |
| | Place of worship | 1/4 seats + 1/200 (non-seating area space) | | 1/6 seats<br>1/200 (if no seats) | | | |
| | Museum/library/public cultural facility | 1/300 | | 1/400 | | | |
| | Civic/public use facility | 1/200 | | | | | |
| | Police/Fire/EMS station | 1/200 | | | | | |
| Recreation-Open Space | Park/outdoor recreation | 1/200 of bldgs + 1/3 expected users at capacity | | 1/600 useable rec. area | | | |
| Notes | | | | | | | Only if >20 spaces would be required ordinarily |
| Flexibility provisions and reductions | | Presumptive, satellite, payment-in-lieu, bike, motorcycle, shared use, bus route, older adults, walk-in | | Satellite, payment-in-lieu, transit payment-in-lieu, altnerative transportation facilities, shared use, bike locker | | | |
| | | | | | | | |
| * Not all land uses represented. Some category names are not exactly the same as listed in ordinances. | | | | | | | |
| # = includes an exception not otherwise listed in the table | | | | | | | |
| | | | | | | | |
| **Notes** | | | | | | | |
| (1) Except SUP for increased res density above by-right density, and only required for increment of units above by-right units (this can be waived by City Council). | | | | | | | |
| | | | | | | | |
| **Abbreviations** | | | | | | | |
| DU = dwelling unit; BR = bedroom | | | | | | | |

# Parking Evaluation

***Evaluating Parking Problems, Solutions, Costs, and Benefits***

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***TDM Encyclopedia***
Victoria Transport Policy Institute

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Updated 10 September 2012

*This chapter describes factors to consider when evaluating parking policies, including perspective, problem definition, and evaluation criteria. It discusses various ways to define parking problems and evaluate solutions, specific evaluation criteria, typical parking facility costs, and impacts on consumers, economic development and land use.*

**Index**



## Introduction

*Parking policy* refers to parking facility regulation, pricing, management and design decisions. Many TDM strategies involve parking policy changes, as listed below. This chapter discusses how to evaluate these policies.

**TDM Strategies That Affect Parking Policy**

- Parking Management
- Parking Pricing
- Shared Parking
- Commute Trip Reduction
- Commuter Financial Incentives
- Transportation Management Associations
- Bicycle Parking
- Smart Growth
- New Urbanism
- Location Efficient Development
- Transit Oriented Development
- Access Management

## Defining Parking Problems and Solutions

According to management experts, “A problem correctly defined is a problem half solved.” How parking problems are defined affects which solutions are considered and how they are evaluated.

Parking problems are often defined to mean that motorists consider parking inadequate, inconvenient or expensive. This implies that the best solution is to increase parking supply without directly charging users. But there are other ways to define parking problems that suggest other Parking Solutions. Parking problems may reflect:

- Inadequate information for motorists on parking availability and price. The solution could be to improve use information.

- Inadequate user options. The solution could be to improve parking options, such as letting motorists choose between convenient, priced parking and less convenient, free/inexpensive parking.

- Inconvenient Parking Pricing methods, such as mechanical meters that require users to predict how long they will be parked and only accept certain coins. The solution could be to improve pricing systems.

- Inefficient use of existing parking capacity. The solution could be to use Parking Management strategies that result in more efficient use of parking facilities.

- Excessive automobile use. The solution could be to reduce Automobile Dependency and encourage transportation alternatives.

- Concerns over spillover parking congestion in nearby areas if parking supply is inadequate or priced. The solution could be to provide parking management and enforcement in impacted areas.

- Economic, environmental and aesthetic impacts of parking facilities. The solution could be to reduce parking supply and improve parking facility design.

Table 1 summarizes these different perspectives and the solutions they imply. This is not to suggest that there is a single correct perspective, problem definition or solution. It is often helpful to view the same problem from different perspectives, and to apply several solutions.

***Table 1*** **Comparing Perspectives of Parking Problems**

| Perspective | Problem Definition | Potential Solutions |
|---|---|---|
| Supply-oriented | Inadequate supply, excessive price. | Have governments, businesses and residents supply more parking. Increase minimum parking standards. |
| Information Oriented | Inadequate user information. | Create signs, brochures and other information resources indicating parking availability and price. |
| Choice-Oriented | Inadequate consumer options. | Increase the range of parking convenience and price levels available to consumers. |
| Pricing Convenience | Pricing is inconvenient. | Develop more convenient payment and time options. |
| Efficiency-oriented | Inefficient use of existing parking capacity. | Share parking facilities. Implement transport and parking demand management. Price parking. Provide shuttle services to parking facilities. |
| Demand-oriented | Excessive automobile use. | Improve access and transport choice. Transport and parking demand management programs. |
| Spillover Impacts | Inadequate parking causes problems in other locations. | Use management strategies to respond to spillover problems. Improve enforcement of parking regulations. |
| External Impacts | Parking facilities impose external costs. | Reduce parking minimums. Price parking. Improve parking facility design. Implement TDM programs. |

*This table summarizes different perspectives for viewing parking problems.*

## Evaluation Framework and Criteria

An Evaluation Framework specifies various details of an evaluation process. A Planning Process should define its goals, objectives, evaluation criteria and performance indicators. For example, the goal of a parking program could be to improve access to an area by reducing parking problems. Objectives might be to increase parking supply, encourage more efficient use of existing parking facilities, and encourage use of alternative transportation in that area. Performance indicators might include parking and transportation costs per trip, the ease of finding a parking space, support for strategic transportation and land use objectives, and user satisfaction measured through surveys and complaints.

*Evaluation Criteria* refers to factors that should be considered when evaluating parking problems and solutions. Some important parking evaluation criteria are discussed below.

## Demand and Adequacy

*Parking Demand* refers to the amount of parking that would be used at a particular time, place and price. It is a critical factor in evaluating parking problems and solutions. Parking demand is affected by vehicle ownership, trip rates, mode split, duration (how long motorists park), geographic location (i.e., downtown, regional town centre or suburban), the quality of travel alternatives, type of trip (work, shopping, recreational), and factors such as fuel and road pricing.

There are usually daily, weekly and annual demand cycles. For example, parking demand usually peaks on weekdays at office buildings and on weekend evenings at theaters and restaurants. Parking demand can change with transportation, land use and demographic patterns. For example, a particular building may change from industrial to residential or office use, neighborhood demographics and density may change, and the quality of transit service may change, all of which affects parking demand.

Different types of trips have different types of parking demand, and different types of parking facilities tend to serve different types of trips. For example, commuters need long-term parking, and because they park all day they are relatively price sensitive. Many commuters are willing to walk several blocks for cheaper parking. Off-street parking leased by the month tends to serve commuters. Customers need shorter-term parking that is located as close as possible to their destination, and are often willing to pay a relatively high hourly price for increased convenience. On-street parking that is metered or regulated to maximize turnover tends to serve customers.

*Adequacy* refers to whether there is sufficient parking at a particular time and location. What constitutes adequacy varies depending on conditions and user expectations. For example, even in dense areas parking is usually adequate during off-peak periods, or at a sufficient price. Similarly, parking may be considered inadequate at a particular location, but is available a few blocks away. Unregulated parking it may be adequate for residents and employees, who park early in the day, but inadequate for delivery vehicles, customers and clients who arrive later. Conversely, parking with a 2-hour or less time limit, or is priced, may be considered adequate for short-term users but inadequate for employees and residents who must park all day.

Transportation professional organizations have developed recommended minimum parking requirements for various types of land use, as illustrated in Table 1. These standards are based on numerous parking demand studies, which are generally performed at new suburban sites with unpriced parking. Parking regulations often reflect an 85$^{th}$ percentile demand standard, which means that 85 out of 100 sites will have unused parking supply even during peak periods. These standards tend to be excessive for more accessible conditions, priced parking, where other TDM strategies are implemented, or where parking facility costs are high (Shoup 1999; Daisa and Parker 2010). These standards can be adjusted based on demographic and geographic factors (Cuddy 2007; Engel-Yan and Passmore 2010; Topp 2009).

***Table 2*** **Typical Off-Street Parking Requirements** (ITE, 1999)

| Building Type | Unit | Spaces |
|---|---|---|
| Single Family Housing | Dwelling Unit | 2.0 |
| Multi-Family Housing | Dwelling Unit | 1.8 |
| Apartments | Dwelling Unit | 1.5 |
| Neighborhood Commercial | 100 sq. m. GLA | 4.7 |
| Community Commercial | 100 sq. m. GLA | 5.3 |
| Regional Commercial | 100 sq. m. GLA | 5.8 |
| Office Building | 100 sq. m. GFA | 3.2 |
| Fast-Food Restaurant | Seats | 0.85 |
| Church | Seats | 0.5 |
| Hospital | Beds | 2.6 |
| Light Industry | 100 sq. m. GFA | 2.2 |

GLA = Gross Leasable Area GFA = Gross Floor Area

Parking facilities must be located within convenient walking distance of the destinations they serve. Table 3 indicates acceptable walking distances between parking facilities and destinations.

***Table 3*** **Level of Service By Walking - Distance in Feet** (Smith and Butcher, 1994)

| Walking Environment | LOS A | LOS B | LOS C | LOS D |
|---|---|---|---|---|
| Climate Controlled | 1,000 | 2,400 | 3,800 | 5,200 |
| Outdoor/Covered | 500 | 1,000 | 1,500 | 2,000 |
| Outdoor/Uncovered | 400 | 800 | 1,200 | 1,600 |
| Through Surface Lot | 350 | 700 | 1,050 | 1,400 |
| Inside Parking Facility | 300 | 600 | 900 | 1,200 |

*This table indicates parking access Level of Service (LOS) rating under various conditions.*

Acceptable walking distance is also affected by climate, line of site (longer distances are acceptable if people can see their destination), "friction" (barriers along the way, such as crossing busy traffic), and by the type of activity and user, as described in Table 4.

***Table 4*** **Walking Level of Service For Various Situations**

| Adjacent | Minimal (LOS A or B) | Medium (LOS B or C) | Long (LOS C or D) |
|---|---|---|---|
| People with disabilities<br>Deliveries and loading<br>Emergency services<br>Convenience store | Grocery stores<br>Professional services<br>Medical clinics<br>Residents | General retail<br>Restaurant<br>Employees<br>Entertainment center<br>Religious institution | Airport parking<br>Major sport or cultural event<br>Overflow parking |

*This table indicates maximum acceptable walking distance from parking to destinations for various activities and users.*

The usable parking supply serving a destination can often be increased by improving pedestrian access. Improving sidewalk or path, developing a shortcut, adding shade or rain covers along walkways, improving personal security, and aesthetic improvements can expand the range of parking facilities that serve a building or area. Users usually prefer the closest possible parking location, but given a choice, motorists sometime prefer to park further away to save on parking fees. In some situations (airports, large entertainment centers, and large commercial centers), shuttle buses may allow longer distances between parking facilities and destinations. For example, the *Lloyd District* Transit Oriented Development reduced the number of parking spaces required in the area from 12,000 (conventional requirements) to 3,120 (actual requirements), reducing estimated parking facility costs from $360 million to just $94 million (http://downtownaustin.com/downloads/RickWilliamsLloydTMA0509.pdf).

Efficient Parking Management can reduce the number of parking spaces needed to provide a given level of service by Sharing parking facilities (so each space serves more destinations) and giving priority to higher value trips by Parking Pricing and regulation. A New York City pilot project found higher turnover and improved availability of on-street parking spaces after time-variable meter pricing was introduced, with higher rates during peak periods and lower rates off-peak (NYDOT 2009).

## Parking Facility Costs

Most people have little idea what it really costs to provide a parking space, because they never purchase parking facilities as an individual item (parking facilities are usually bundled with buildings), and when consumers pay for parking, a portion of costs are often subsidized. For example, when a campus or city charges users to recover parking costs, land costs and property taxes are often excluded. As a result, consumers tend to underestimate the full costs of providing parking. Parking facility costs are described below. For more detailed information see the "Parking Costs" chapter of the *Transportation Cost and Benefit Analysis Guidebook* at www.vtpi.org/tca.

### *Land*

A typical parking space is 8-10 feet (2.4-3.0 meters) wide and 18-20 feet (5.5-6.0 meter) deep, totaling 144-200 square feet (13-19 sq. meters). Off-street parking requires driveways (connecting the parking lot to a road) and access lanes (for circulation within a parking lot), and so typically requires 300-400 square feet (28-37 square meters) per space, allowing 100-150 spaces per acre (250-370 per hectare). On-street parking is usually 7-8 feet wide (2.1-2.4 meter) and requires

20-22 feet (6.1-6.7 meters) of curb.

Land costs can vary from just a few thousand dollars for a rural acre to more than a million dollars an acre in major urban areas. Because parking must be located adjacent to or very near to destinations, it is not usually possible to use the cheapest land.

In some situations land is available for parking at little or no additional cost, such as a part of existing road right-of-way, or part of a parcel that is not needed for buildings. But these may still have an opportunity cost. For example, using curb space for parking may require trade-offs with traffic lanes, landscaping or sidewalk space. Land used for off-street parking may displace buildings or gardens. Public land devoted to parking facilities is often treated as having no cost, but there is usually an opportunity cost. For example, land used for municipal parking facilities could be rented or sold, or converted into parks. The cost includes the reduced income and taxes, or the loss of benefits from a park.

### *Construction Costs*

Table 5 indicates typical construction costs for various types of parking facilities. These costs increase for facilities build on poor soil or significant grades, irregular shapes, and for landscaping or facilities such as washrooms and elevators. In addition to these "hard" costs, facility development usually involves "soft" costs for project planning, design, permits and financing, which typically increase project costs by 30-40% for a stand-alone project (ITE 1999; NPA 2009).

***Table 5*** **Typical Parking Construction Costs** (PT, May 2000, p. 28)

| | Small Site (30,000 sf) | Medium Site (60,000 sf) | Large Site (90,000 sf) |
|---|---|---|---|
| Area Per Space | *350 sf* | *325 sf* | *315 sf* |
| Surface Parking | $1,838 | $1,706 | $1,654 |
| Ground + 1 level | $7,258 | $6,143 | $5,705 |
| Ground + 2 level | $8,085 | $6,767 | $6,284 |
| Ground + 3 level | $8,407 | $6,996 | $6,491 |
| Ground + 4 level | $8,747 | $7,269 | $6,747 |
| Ground + 5level | $8,973 | $7,451 | $6,918 |
| Ground + 6 level | $9,135 | $7,581 | $7,040 |
| Ground + 7 level | $9,256 | $7,678 | $7,132 |
| Ground + 8 level | $9,351 | $7,754 | $7,203 |

2000 U.S. dollars. Assumes rectangular site, good soil conditions, quality finish.

Structured parking involves a trade-off between construction and land costs. Structured parking typically becomes cost effective when land prices exceed about $1 million per acre. An increasing portion of new parking is provided in parking structures (about 60% of paid, off-street parking is in surface lots and 40% is in parkades).

### *Operation and Maintenance*

Operation and maintenance costs include cleaning, lighting, maintenance, repairs, security services, landscaping, snow removal, access control (e.g., entrance gates), fee collection (for priced parking), enforcement, insurance, labor and administration. Multi-story parkades may require additional costs for fire control equipment and elevators, and underground parking may require mechanical ventilation. Private parking facilities must pay taxes and provide profits. Typical annual costs per space range from about $200 for basic maintenance of a surface lot, up to $800 for a facility with tollbooth attendants. A 1996 survey found that operating expenses for commercial parking structures average about $500 annually per space, about half of which is associated with fee collection and security (ITE 1999, p. 535):

| | |
|---|---|
| Cashiering Salaries & Benefits | $120 |
| Management | 77 |
| Security | 67 |
| Utilities | 58 |
| Insurance | 16 |
| Supplies | 8 |
| Routine Maintenance | 19 |
| Structural Maintenance | 50 |

| | | |
|---|---|---|
| Snow removal | | 4 |
| Equipment maintenance | | 11 |
| Other expenses | | 64 |
| | **Total** | **$494** |

### *Transaction Costs*

*Transaction Costs* are any ongoing incremental costs caused by regulations or pricing, including costs for equipment (signs, parking meters, ticket printers, access gates), attendants, land (such as sidewalk space used by parking meters) and administration. The incremental cost of Parking Pricing ranges from less than $50 annually per vehicle for a simple pass system with minimal enforcement, to more than $500 per space for facilities with attendants or automated control systems (Pricing Methods). Pricing also imposes transaction costs on motorists, including the time and inconvenience needed to pay fees.

### *Environmental Costs*

Paving land for parking can impose environmental costs, including loss of greenspace (reduced farmland, gardens and wildlife habitat), increased impervious surfaces and related stormwater management costs (NEMO project), and aesthetic degradation (Land Use Evaluation).

The Project Clean Water (www.projectcleanwater.org) describes various stormwater district fees, as summarized in the table below. This suggests that an off-street urban parking spaces with 333 square feet of pavement imposes stormwater utility costs $1-5 per year.

***Table 6*** **Impervious Surface Stormwater Fees** (Project Clean Water, 2002)

| Location | Fee | Annual Fee/1000 sq. ft. |
|---|---|---|
| Columbia Country Stormwater Utility, Augusta, GA | $1.75 monthly per 2,000 sq. ft. | $10.50 |
| Spokane Country Stormwater Utility, Spokane, WA | $10 annual fee per ERU. | $3.13 |
| City of Oviedo Stormwater Utility, Oviedo, FL | $4.00 per month per ERU | $15.00 |

"Equivalent Run-off Unit" or ERU = 3,200 square foot impervious surface.

### *Total Costs*

The table below illustrates examples of parking facility financial costs. This varies from about $250 per stall if otherwise un-used land is available and construction and operating costs are minimal, to more than $2,000 for structured parking with attendants. This does not include indirect and environmental costs.

***Table 7*** **Typical Parking Facility Financial Costs** (Parking Cost Spreadsheet)

| Type of Facility | Land Costs | Land Costs | Construction Costs | O & M Costs | Total Cost | Daily Cost |
|---|---|---|---|---|---|---|
| | *Per Acre* | *Per Space* | *Per Space* | *Annual, Per Space* | *Annual, Per Space* | *Per Space* |
| Suburban, On-Street | $50,000 | $200 | $2,000 | $200 | $408 | $1.36 |
| Suburban, Surface, Free Land | $0 | $0 | $2,000 | $200 | $389 | $1.62 |
| Suburban, Surface | $50,000 | $455 | $2,000 | $200 | $432 | $1.80 |
| Suburban, 2-Level Structure | $50,000 | $227 | $10,000 | $300 | $1,265 | $5.27 |
| Urban, On-Street | $250,000 | $1,000 | $3,000 | $200 | $578 | $1.93 |
| Urban, Surface | $250,000 | $2,083 | $3,000 | $300 | $780 | $3.25 |
| Urban, 3-Level Structure | $250,000 | $694 | $12,000 | $400 | $1,598 | $6.66 |
| Urban, Underground | $250,000 | $0 | $20,000 | $400 | $2,288 | $9.53 |
| CBD, On-Street | $2,000,000 | $8,000 | $3,000 | $300 | $1,338 | $4.46 |
| CBD, Surface | $2,000,000 | $15,385 | $3,000 | $300 | $2,035 | $6.78 |
| CBD, 4-Level Structure | $2,000,000 | $3,846 | $15,000 | $400 | $2,179 | $7.26 |

| | | | | | | |
|---|---|---|---|---|---|---|
| CBD, Underground | $2,000,000 | $0 | $25,000 | $500 | $2,645 | $8.82 |

*This table illustrates the financial costs of providing parking facilities under various conditions. (CBD = Central Business District)*

There are probably about one residential offstreet parking space, two non-residential off-street parking spaces, and two on-street parking spaces per automobile, with an average annualized cost of $400 per on-street space, $600 per residential space, and $800 per non-residential space, totaling about $3,000 annually per vehicle. Costs per space are lower in suburban and rural areas, due to lower land costs, but there tend to be more spaces per vehicle in such areas, so per vehicle parking costs are probably about the same. Most residential parking costs can be considered to be borne by users through rents. According to travel surveys motorists only pay directly for parking at 1-2% of trips, although priced parking tends to be most common at major commercial centers where the costs of providing parking facilities tends to be highest, so perhaps 5% of non-residential parking costs are paid directly by users. The costs of on-street parking are borne by governments, while most off-street parking costs are borne by businesses and other organizations. Table 8 summarizes this estimate of total parking costs per vehicle, indicating that about three-quarters of total parking costs are not paid directly by users.

***Table 8*** **Typical Parking Facility Financial Costs** (Litman, 2005)

| | Spaces Per Vehicle | Annual Cost Per Space | Paid Directly By Users | User-Paid Costs | External Costs | Total Costs |
|---|---|---|---|---|---|---|
| Residential | 1 | $600 | 100% | $600 | 0 | $600 |
| Off-street | 2 | $800 | 5% | $80 | $1,520 | $1,600 |
| On-street | 2 | $400 | 5% | $40 | $760 | $800 |
| *Totals* | *5* | | | *$720 (24%)* | *$2280 (76%)* | *$3,000 (100%)* |

*This table shows an estimate of total parking costs per vehicle and their distribution. It indicates that users only pay directly for about a quarter of total parking costs. The rest are borne indirectly through taxes, reduced wages, and additional costs for goods and services.*

### *Load Factor*

This refers to the portion of parking spaces that are used at a particular time, or the portion of hours or days per year that a space is used. Financial calculations should take into account load factors. For example, if parking spaces rent for $60 per month with a 50% average load factor, revenues average $30 per space. If the facility requires $50 monthly revenue per space for cost recovery, either the monthly charge or the load factor would need to increase.

## Consumer Impacts

Inadequate or expensive parking causes delay and inconvenience if motorists must search for parking or walk an excessive distance to their destinations. In general, motorists prefer abundant, unpriced and unregulated parking. However, consumers ultimately bear parking facility costs through increased prices and taxes, and reduced employee benefits. In addition, underpriced parking increases vehicle ownership and use, exacerbating problems such as traffic congestion, accidents, energy consumption and pollution emissions (Roth 2004). The real choice motorists face is not between free or priced parking, but between paying for parking directly or indirectly. Parking regulation and pricing can increase consumer convenience by increasing turnover of the most convenient parking spaces so they are available for errands. Listed below are factors to consider when evaluating parking policy consumer impacts.

- Delay and frustration tends to be greatest if motorist lack accurate information on their parking options. For example, motorists are likely to be frustrated if they expected abundant and free parking but find limited or expensive parking, or if they must spend excessive time searching for a parking space.

- Pricing Methods are often inconvenient to use. Many require motorists to prepay based on the maximum amount of time that they may be parked and the price structure used at a particular parking space. As a result, motorists often end up paying for time they don't actually use, and if they guess wrong (pay for 30 minutes but park for 40) they face a fine.

- Parking regulations and pricing often seem confusing and unfair. Regulations and fees may apply at certain times but not

others. Parking subsidies may be provided to some users but not others. For example, executives and employees whose jobs may require driving for business trips often receive free parking, while other employees do not.

## Equity Impacts

Parking policies can have various Equity Impacts. These impacts depend on the type of parking policies, community conditions, and the perspective and assumptions used for analysis. Equity issues that are often associated with parking policies are described below.

### *Parking Subsidies*

Policies to provide generous, free or inexpensive parking often result in cross subsidies from households that drive less than average to households that drive more than average. This violates the principle of horizontal equity. Policy changes that result in more direct payment of parking costs, reduce total parking costs, or provide comparable benefits to non-drivers tend to support equity objectives.

User charges are usually the most equitable way to fund parking facilities and transportation services, unless a subsidy is specifically justified for a disadvantaged group. Some motorists may use the following arguments for unpriced parking. Parking policies can usually be designed to address them.

- They have already paid for parking facilities through taxes or commercial purchases.
- Parking is free at other locations or times, so it is arbitrary and unfair to charge for parking.
- Charging for parking is regressive and harmful to lower income motorists.

### *Impacts on Disadvantaged People*

Parking policies can have a variety of impacts on people who are economically, socially or physically disadvantaged.

Parking Pricing is often considered regressive, since a particular fee represents a greater share of income for lower-income motorists than to higher income motorists. However, overall impacts on lower-income people depend on whether they own a car, how much they drive and park, how parking facilities are funded, and how revenues are used. Since vehicle ownership and use tend to increase with income, higher-income people tend to receive more per capita economic subsidy than lower-income people, so an alternative subsidy would be more progressive.

Unpriced parking can be considered to benefit lower-income households only if somebody else bears most cost of providing parking facilities. Given a choice between free or priced parking, with everything else held constant, lower-income motorists can benefit from parking subsidies. But given a choice between direct or indirect payment of parking (i.e., motorists are given $1,000 a year worth of free parking, but bear this cost as additional taxes or a reduction in wages), or between free parking or a generic subsidy that can be spent on other goods, pricing parking may benefit lower-income households overall.

Some parking management strategies can be particularly beneficial to lower-income people. For example, Parking Cash Out provides financial benefits to people who use alternative forms of transportation (walking, cycling, ridesharing and public transit), which includes many lower-income consumers. Location Efficient Development allows households that do not own an automobile to avoid paying for parking spaces that they do not need, and makes housing purchases more affordable.

Parking policy decisions can affect Transportation Options. Improved transportation choice tends to benefit people who are transportation disadvantaged. For example:

- Parking facilities that reflect Universal Design principles, with handicapped parking spaces and circulation paths designed for wheelchairs, better accommodate people with disabilities.

- Parking facilities located in front of a building tend to reduce pedestrian access compared with buildings located close to the street with parking located in back.

- Priority parking can be provided for Rideshare vehicles.

- Parking policies that encourage higher-density, clustered development create more accessible land use, which supports walking, cycling and public transit use.

### *Administrative Fairness*

Public officials and developers may believe that it is fairest to apply regulations consistently, with minimal variation or flexibility. This may justify applying the same parking requirements to all facilities in the same land use category, even if such standards are excessive under some circumstances.

## Economic Development Impacts

Abundant and free parking is often used to attract customers and to reward employees. Businesses in areas with limited or priced parking (such as traditional downtowns and urban business districts) often feel at a competitive disadvantage compared with businesses that provide free parking (such as suburban malls and commercial centers). As a result, businesses often favor policies that increase parking supply and reduce parking prices. These impacts depend on specific conditions, including how prices are structured, and the quality of travel and location alternatives. When parking revenues are used to improve local streetscape conditions or to fund transportation alternatives they can increase business activity in a downtown (Kolozsvari and Donald Shoup 2003).

However, businesses ultimately bear the costs of unpriced parking, directly or through taxes that they must pass on to customers. Generous parking requirements can constrain businesses in other ways. For example, the need to provide abundant free parking may prevent a business from expanding its building or choosing an optimal location. Providing free employee parking can reduce the supply of customer parking. Parking Pricing, Parking Management and other TDM strategies that result in more efficient use of parking facilities may be more profitable to businesses and support economic development better than current practices based on abundant, free parking.

Many economically successful areas, such as large commercial centers, have limited parking and high parking prices (Martens 2006). Real estate market analysis suggests that traditional urban areas, where parking is limited and priced, often experience greater economic growth than suburban areas (LLREI 2000). This suggests that parking pricing and other management strategies are not necessarily harmful to local economic development if an area is attractive and accessible in other ways (Roth, 2004; Martens, 2006). Using existing parking supply more efficiently tends to support TDM and Smart Growth objectives, providing additional economic, social and environmental benefits.

## Transportation and Land Use Impacts

Parking policy impacts on various strategic transportation and land use objectives are discussed below.

### *Transportation Demand Management*

Many communities have objectives to reduce peak-period automobile traffic and encourage use of alternative modes. Parking policies affect the frequency, timing and destination of vehicle trips, and even the number of vehicles a household owns (Elasticities). Parking policy changes support most other TDM strategies. For example, reduced parking supply and increased parking price can be an effective component of a Commute Trip Reduction program, particularly if it includes improvements to alternative modes (Hensher and King, 2001). Such objectives should be considered when evaluating parking policies.

### *Transportation Options*

Many communities have objectives to improve transportation choice, including cycling and pedestrian conditions, ridesharing and transit service (Evaluating Transportation Options). Generous parking requirements help create low-density land use patterns with dispersed destinations and unattractive streetscapes, that are unsuited for walking, and therefore for transit, since transit trips usually involve pedestrian links. Devoting land and funds to automobile parking often reduces the resources available to support other modes. As a result, policies that increase parking supply tend to reduce overall transportation choices

### *Land Use*

Many communities have Smart Growth strategic land use objectives that include reduced urban expansion, higher density and clustered development, greenspace preservation, increased urban infill and redevelopment, and more attractive streets (Land Use Evaluation). Parking policies can have significant impacts on these objectives. Generous, free parking tends to create low-density, automobile-oriented land use patterns, and increase the costs of urban redevelopment, reducing housing affordability (Cutter, Franco and DeWoody 2010). Parking policy changes can support Smart Growth land use objectives.

### *Spillover Congestion*

Parking regulations and pricing in one area can cause spillover problems, including traffic congestion as motorist cruise for parking or stop in a traffic lane to wait for a space, and parking congestion in nearby areas. For example, parking congestion in commercial areas can result in parking congestion on nearby residential streets, or illegal use of off-street parking at nearby businesses. Spillover parking problems can be addressed by pricing, regulation and enforcement in areas that experience such problems, and compensation to residents who bear negative impacts. For example, residents near high schools and colleges may be given free tickets to sport events to compensate for spillover parking problems that occur during such events. These impacts and possible solutions should be considered when evaluating parking policies.

## Facility Design

Parking facility design features affect user convenience, comfort and security, and environmental impacts and aesthetics. Alternative parking facility design options should be considered when evaluating parking policies and solutions. Examples of specific parking design objectives and guidelines are described below.

- Shared Parking among different users and buildings can result in more efficient use of parking supply and increased flexibility in parking facility design.
- Newer parking facility design standards can improve safety and convenience for motorists and pedestrians.
- Universal Design features make parking facilities better accommodate special needs, such as people with disabilities, and people using strollers and handcarts.
- Aesthetic and landscaping design features can make parking facilities more attractive and integrated into the streetscape (Smith 1988) and reduce stormwater management costs (NEMO Project).
- Locating buildings close to the street, with parking facilities behind, can help create a more accessible, pedestrian-friendly streetscape (New Urbanism).
- Various facility design and equipment options can be used for Parking Pricing and access control.
- Clustering parking and reducing the number of driveways onto arterials can improve traffic flow and safety, and create more accessible land use patterns (Access Management).
- In general, a larger number of small parking spaces are more useful and attractive than fewer, larger parking facilities.

# Best Practices

*This section summarizes factors to consider when evaluating parking policy options.*

- Identify specific problems to be addressed, or planning goals and objectives.
- Consider the widest possible menu of Parking Solutions, including management strategies that result in more efficient use of existing supply.

- Identify demographic, land use, economic, and transportation factors that affect parking demand.
- Identify policy, management, regulation or pricing factors that can be used to control parking demand.
- Identify spillover problems that may be created by policies.
- Identify the incremental costs and benefits of polices, including costs to consumers, businesses, governments, neighbors (e.g., spillover impacts), and the environment.
- Evaluate polices in terms of strategic transportation and land use objectives, including transportation demand management and Smart Growth objectives.
- Identify who bears the costs and enjoys the benefits of polices, and whether a policy favors one group over others.
- When citizens oppose Parking Pricing, determine how much of their concern relates to specific pricing methods, and consider use of newer fee collection systems that are more convenient and fair to motorists.

## Related Chapters

Parking Solutions describes various strategies that can help address parking problems. Parking Management, Parking Pricing, Shared Parking, Bicycle Parking and Commute Trip Reduction directly affect parking policies. Land use management strategies such as Smart Growth, New Urbanism and Location Efficient Development also affect parking regulation and management. TDM Evaluation and Price Evaluation provide additional discussion of economic evaluation.

Wit and Humor
It's an interesting linguistic fact that, in English, a double negative forms a positive. In some languages though, such as Russian, a double negative is still a negative. However, there is no language in which a double positive can form a negative.
Yeah, right.

## Examples and Case Studies

### *Urban On-Street Parking Opportunity Costs*

Minikel (2010) estimates the opportunity cost and revenues of on-street parking at Harvard Square in Cambridge, Massachusetts. He compares metered curb parking to other possible uses of the same space, including additional building space, sidewalk space and bike lanes. The analysis indicates that metered parking is currently underpriced compared with nearby off-street parking lots (which charge several times as much per hour) and the value of nearby land (which currently averages $300 per square feet), and so does not recover its opportunity costs. The study concludes that it would be rational to either significantly increase on-street meter rates or allow those parking spaces to be converted to other uses.

### *Porirua, New Zealand Parking Supply and Demand (Hulme-Moir 2010)*

Most New Zealand cities impose generous minimum parking requirements based primarily on American data published by the Institute of Traffic Engineers. A parking study in Porirua, a city of 50,000 residents, found:

- All parking in Porirua City is free.
- Private offstreet lots made up 65% of the total parking stock.
- Parking supply was heavily underutilized. The mean occupancy was 45% (Thursday) and 35% (Saturday). Average peak-period occupancy was 62%. Only 3 out of 22 lots were considered full (85% occupancy) during peak periods.
- Parking demand was poorly related to the predicative variable (Gross Floor Area).
- Having additional parking available within 200 meter walking distance substantially reduced demand at a particular parking lot, since some motorists would park off-site.
- Free parking is a substantial hidden cost. Charging users directly for parking would increase the financial cost of

driving 30-90% for an average shopping trip and about 100% for an average commuting trip.

- Parking facilities use 24% of city land, compared to 7% greenspace and 4% recreation.
- Commuters were surveyed concerning their choice between paying to park in the CBD, park for free a 3 minute walk away, or changing mode. The results indicate that most commuters were more willing to pay to minimize their walking distances, and were reluctant to change mode. The results indicate a -0.6 price elasticity (a 10% price increase reduces parking demand 6%) and a -0.9 walking time elasticity (a 10% walk time increase reduces parking demand 9%.

### *European Parking Management (Kodransky and Hermann 2011)*

Many European cities are implementing innovative parking policies, as described in *Europe's Parking U-Turn: From Accommodation to Regulation*. The report examines European parking over the last half century, through the prism of ten European cities: Amsterdam, Antwerp, Barcelona, Copenhagen, London, Munich, Paris, Stockholm, Strasbourg and Zurich. It found:

- Parking is increasingly linked to public transport. Amsterdam, Paris, Zurich and Strasbourg limit parking supply in new developments based on proximity to bus, tram and metro service. Zurich added tram and bus lines while making parking more expensive and less convenient. As a result, between 2000 and 2005, transit mode share increased 7% and automobile mode share declined 6%.
- European cities increasingly charge for on-street parking. In Paris, the on-street parking supply has been reduced more than 9% since 2003, and of the remaining stock, 95% is priced. Along with other transport improvements, this reduced driving by 13%. Parking reforms are considered a more feasible way to reduce vehicle traffic than congestion charging.
- Revenue gathered from parking tariffs is being invested to support other mobility needs. In Barcelona, 100% of revenue goes to operate Bicing—the city's public bike system. Several boroughs in London use parking revenue to subsidize transit passes for seniors and the disabled, who ride public transit for free.

## References And Resources For More Information


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

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*"Efficiency - Equity - Clarity"*


#73

# Contemporary Approaches to Parking Pricing:

## A PRIMER


U.S. Department of Transportation
**Federal Highway Administration**

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The Federal Highway Administration (FHWA) provides high quality information to serve Government, industry, and the public in a manner that promotes public understanding. Standards and policies are used to ensure and maximize the quality, objectivity, utility, and integrity of its information. FHWA periodically reviews quality issues and adjusts its programs and processes to ensure continuous quality improvement.

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# Contents

# 1.0 Introduction

United States drivers were introduced to the concept of paid, on-street parking in 1935 when the first parking meter was installed in Oklahoma City. In the ensuing decades little was done to improve the basic tools or processes of parking pricing. Many cities arbitrarily set fixed parking rates that resulted in excess demand for a finite resource. The failure of cities to price parking based on demand has resulted in an underperforming parking system, the impacts of which include lost revenue, increased congestion, decreased access to businesses, environmental harm, and inconveniences to travelers.

Underpriced and free parking also distort travel decisions. Studies have found that free parking can increase the drive-alone rate for commute trips by as much as 50 percent (Hess, 2001; Willson and Shoup, 1990a; San Francisco County Transportation Authority, 1996) and work by Donald Shoup (2006) reported that approximately 30 percent of cars in congested downtown traffic may be looking for parking, adding unnecessary vehicle trips to already congested areas. Correctly pricing parking can help address these issues.

Today, technological advances offer the opportunity to effectively manage and price parking. Improvements in parking management infrastructure and tools combined with innovative thinking by politicians, transportation and parking professionals, and researchers are advancing the field of parking management. New technologies are making it possible to collect and analyze large amounts of data about parking utilization. That in turn allows cities to define clear policy goals and accurately adjust pricing to meet those goals. Better technology has also improved revenue management, provided users with more payment options, and improved enforcement while lowering associated costs.

Because of the opportunities brought about by these new technologies, cities across the United States are able to improve their parking pricing policies to address congestion, improve customer service, increase availability, and address safety concerns for non-motorized travelers. For example, San Francisco and Seattle have both established occupancy goals for on-street parking. San Francisco aims to achieve occupancy rates between 60 to 80 percent and Seattle has a goal of two open spaces per block. Each city now regularly adjusts meter rates to meet the identified goals. Chicago and San Francisco are exploring the use of parking pricing as an alternative to cordon charges. Boulder and Aspen, Colorado have residential parking permit programs that allow commuters to purchase parking passes on a space-available basis. New York City is testing peak-hour parking charges, and Washington, DC is using license plate reader technology to support and analyze its performance-pricing program. Recent experiences in these cities and others provide lessons and opportunities for practitioners interested in advancing parking pricing policies.

This primer discusses advances covering a broad array of parking pricing applications, available technology, preferred user accommodations, and strategies for gaining public acceptance for policy changes. The information provided is meant to increase awareness of innovative approaches, help communities design strategies that are applicable to their unique needs, and encourage new innovations in the field of parking pricing.

The programs and policies discussed here are likely just the beginning of what will be transformative changes to parking management across the United States. Parking professionals will find ways to use technology that have not yet been considered, parking managers will push for more advanced equipment, parking technology will become more affordable, and consensus builders will advance new policies. The Federal Highway Administration (FHWA) hopes that this primer helps to further discussion and innovation during this exciting period.

# Pricing Overview 2.0

FHWA and local governments are looking at leveraging market forces by pricing transportation resources to reduce congestion. Pricing, if properly instituted, accomplishes three important objectives:

1) It can allocate scarce transportation resources in a way that mitigates congestion and ensures greater efficiency from the entire transportation system;

2) It reduces potentially market distorting subsidies that have induced excess auto travel; and

3) It creates a revenue stream that can be invested in access enhancements, which could in turn reduce parking (and driving) demand.

Pricing parking can be a powerful tool—especially when used in conjunction with other travel demand management strategies—to influence travelers' decisions about whether to drive alone, carpool, use transit, or use non-motorized travel modes. Reductions in drive-alone travel can subsequently reduce emissions and congestion and improve access and revenue generation.

This section of the primer discusses the two basic approaches to parking pricing: 1) free and fixed-rate pricing and 2) performance-based pricing. Within performance-based pricing there are two primary strategies: variable prices and escalating prices. These approaches can be used by cities to better manage parking supplies while simultaneously improving the travel experience of those who continue to choose driving. Depending on how parking revenues are invested, a parking strategy can more broadly improve access to an area where the desire to drive and park currently exceeds road capacity and/or parking supply.[1]

## 2.1 FREE AND FIXED RATE PARKING

Cities own a tremendous amount of real estate that comprises the public right-of-way (ROW). While the value of the ROW as an asset is implicit in permit fees for uses ranging from block parties and construction to non-automobile storage, peculiarly, most cities allow residents and visitors to store their automobiles rent free on much of the ROW. In some instances, typically in business districts, municipalities will charge nominal parking meter fees. Because cars are parked about 96 percent of the time and because estimates of the number of parking spaces per automobile range from three to five, the 194 million registered vehicles in the United States take up between 5,200 and 8,700 square miles of parking space. The land devoted to parking in the United States could fill an area between the size of Connecticut and New Jersey—a valuable asset that is underutilized.

As noted in the introduction, the first parking meters were installed in Oklahoma City in 1935. Studies pre-dating the installation of those meters showed that vehicles parked on commercial streets belonged, by and large, to local merchants and their employees. Customers, who had begun to own automobiles at increasing rates, were left to circle around hoping that a parking space would become available. These drivers contributed to the incipient but fast growing downtown congestion problems. Civic leaders recognized that by renting the curb, rather than giving it away, they could shift the dynamic. Meters were first installed on only one side of each street. In the morning, as workers and merchants arrived, the free spaces quickly filled. By 10:00 a.m., as shoppers came downtown, metered spaces made up the majority of available parking. As customers completed their business and departed, the metered spaces were used by later arriving customers, who also paid for use of the parking spaces. By one account, merchants

[1] In many instances of apparent parking under-supply it is infeasible and/or unsound to add parking capacity. This occurs where the street system is also congested and where adding parking would require reducing active uses of the land.

on the free side began to clamor for meters on their side as well (Popular Mechanics, 1935). The pricing strategy was very effective; instead of having all the spaces taken up by all-day parkers, ample turnover allowed many users to access the area. In short order, other cities adopted this approach to rationing the curb. All-day parkers resorted to finding spaces in slightly more remote areas, or left their vehicles at home, allowing the high-demand spaces to turn over repeatedly throughout the day. The outcome was good for business and good for street performance.

With inflation, however, the price of the meters effectively became lower and lower, and the rationing effect was eroded. Losing sight of the initial reason for meter installation, city leaders became dependent on parking revenues but lacked the political will to price the curb effectively to continue the initial success. Instead, downtown merchants, fearing competition from the burgeoning suburbs, fought for cheap or free parking.

Boston is an instructive case. In January 2011 Boston increased meter rates for the first time in 25 years, after "mulling it over for 10 years" (Andersen 2011). By the time of the rate increase, the pre-existing $1.00 an hour meter rate, set uniformly across the city, had lost value with inflation. The rate was effectively half what it had been when it was set in the mid-1980s. To restore the meter rate to what it had been the city would have had to double the rate to $2.00. Rather than use a performance-based pricing strategy, as explained below, the city simply increased the rate to $1.25 and justified the increase as a way to raise revenue for the city's general fund. Lacking a travel management rationale, the rate hike was seen by parkers as a tax on drivers.

On-street parking and most municipally or publicly owned off-street parking, particularly at transit stations, has traditionally been free or set at fixed prices that vary little by location or time of day. In those cases where prices had at some time been established according to supply and demand, the failure of pricing to keep pace with inflation (and demand) has left the municipalities and agencies in charge of parking pricing without a sound justification for taking action. As in the Boston example, fixed-price parking, across time and geography, without respect to demand or inflation, is not very different from free parking in terms of congestion mitigation and access. Fixed-price parking has a benefit over free parking in that it does signal a fee for use of the space rather than simply an entitlement to the ROW, but it falls far short of its potential as an effective demand management tool.

In the 1960s and 1970s, cities concerned about competition from suburban merchants focused on trying to offer free and abundant parking instead of focusing on parking access. Boulder, Colorado, however, was an exception. Boulder's city leaders and merchants believed the essential ingredient to success was available parking for those who drove to the main business district, but, at the same time, they saw the value of rationalizing access, realizing that in order to offer abundant free parking, as suburban developers did, they would have to redevelop in a suburban style. By allowing the large-scale development of parking facilities, the city would essentially erode land values and become "suburban" itself. Instead, the city established the first parking benefit district, charging for parking, coordinating on-street and off-street fees, and using the revenue to enhance other transportation modes.

Photo credit: iStockphoto

Rather than maintaining fixed pricing, increasingly cities are taking a holistic approach, as Boulder did. The current approach considers access broadly, taking into account all travel modes, and uses modern parking-management strategies to define and meet demand. These cities set parking rates to achieve specific occupancy goals or other objectives. Depending on the goals and local conditions, parking rates can vary by location, time of day, and presence of a special event. Policies and subsequent pricing are data-driven and designed to balance demand throughout neighborhoods and central business districts. Because they are data-driven, these policies allow city managers to adjust prices quickly based on economic and land-use changes.

## 2.2 PERFORMANCE-BASED PRICING

Fixed-rate pricing has been the standard parking-pricing option for cities since the parking meter was introduced. While it may not adequately price parking, it does have advantages. The pricing scheme can be implemented with mechanical meters, requires no additional special equipment, and does not require the collection of data regarding parking utilization and availability. Unfortunately, fixed-rate pricing fails to manage parking supply.

Pricing parking based on performance goals for the street or transportation system, often called performance-based pricing, allows cities to better manage the parking supply. Parking experts generally agree that 10 to 20 percent (one or two spaces) of on-street parking per block should be vacant most of the time as a way to reduce or eliminate cruising for parking (BPR, 1956; Levy, et al. 2012). Higher vacancy rates may be a sign that pricing is too high.

While a vacancy rate of 10 to 20 percent might be the most common performance goal used by cities, other goals can be considered as well. Pricing can be set to drive turnover, maximize value extraction, and transition travelers away from private automobiles to more sustainable travel modes. In any case, the performance standard is met through various pricing schemes, including rates that escalate the longer a person is parked, prices that vary by location, prices that vary by time of day, or a combination of these options.

Implementing a performance-based pricing program begins with understanding the local parking context and establishing a balance between parking supply, both on street and off, and demand. Accurate and up-to-date supply and demand data are helpful to determine appropriate parking rates, but the rates can be set empirically as well. San Francisco and Seattle are good examples of cities that are empirically setting rates to reduce cruising. San Francisco has taken a complex approach with the aid of "smart" meters that can accommodate multiple forms of payment, charge variable parking rates, and record data regarding usage and duration of use; parking sensors; and a very advanced data collection system, whereas Seattle is experimenting with a low-technology approach that focuses on manual measurements of on-street parking conditions. Both cities seek to set rates that assure an appropriate level of available space (see the Seattle case study in section 7 and the San Francisco callout at the end of this section).

### *Variable Rates*

Parking rates should be allowed to vary across a variety of dimensions. One dimension should be geographical, as some areas of a city will have greater parking demand than others. Rates should also vary by time of day, which is already a common practice as meter rates are typically in effect only during daytime hours and overnight parking is free. A few cities, New York City and San Francisco being notable examples, have implemented differential parking rates that vary by time of day based on changes in parking demand. New York City implemented variable parking rates in two pilot neighborhoods. In one neighborhood the peak rate is charged between 12:00 p.m. and 7:00 p.m. and in the other neighborhood the peak rate is charged between 6:00 p.m. and 10:00 p.m. As in most meter applications, overnight parking is still free, leaving three distinct price regimes throughout the day. Rates should also vary across days of the week, as some areas will have higher demand on weekdays than weekends and vice versa. They should also vary across time more generally: as inflation erodes prices and as areas gain or decline in popularity, meter rates should fluctuate to reflect these realities.

A somewhat controversial approach is to vary prices in real-time, which the District of Columbia is proposing to pilot for some on-street commercial vehicle parking. This approach is analogous to a travel lane that is priced to ensure a particular travel time. As parking utilization on a given block increases, the price escalates from a base

price. The practice is more controversial with respect to parking as there is a value-driven belief among most city leaders that people should have a reasonable a priori expectation of prices. Also, it may be counterproductive to keep the price low for people who arrived during a period of high availability. That outcome would encourage people to arrive early and stay for longer periods.

### *Escalating Prices*

Often used in off-street parking, escalating rates increase the longer a vehicle is parked at a location. The rate structure is designed to discourage long-term parking, thereby increasing parking turnover and availability. Differentiated rates are common practice at airports. Airport operators typically divide parking into short-term and long-term lots. The spaces nearest the terminal are well suited to people who are dropping off or picking up passengers and will only use the space for a short time. People who will be parking overnight or for multiple days are often accommodated farther away so the airport operator has adequate parking supply for those who need the more convenient spaces. The way that airports enforce the distinction is by setting different prices. Frequently they will set an escalating price in the short-term lot to discourage long stays. Atlanta's Hartsfield-Jackson airport charges short-term parkers $2.00 per hour for the first 2 hours and then $3.00 per hour for the next 4 hours. At Chicago's O'Hare Airport they charge $2.00 for the first hour, $3.00 for the second hour, nothing for the third hour, and then a steep rise to $5.00 for the fourth hour and $19.00 for the fifth hour. An escalation like this encourages people to park only for short periods to accomplish a task. In the case of an airport, the task is to pick up passengers.

Cities may also use this model where they wish to encourage additional parking turnover. For example, they may wish to use this approach in commercial areas that have many deliveries. If deliveries can be accomplished in 1 or 2 hours, having a third and fourth hour charge that is very high will discourage all-day parkers, allowing an adequate turnover rate so that deliveries can be accommodated. In New York City, certain spaces throughout the city are designated for commercial vehicles. The rate for these spaces is $4.00 for the first hour, $5.00 for the second hour, and $6.00 for the third hour.

## 2.3 PARKING TURNOVER VERSUS PARKING AVAILABILITY

Cities that have adopted explicit performance goals usually seek to achieve a certain level of parking turnover or a certain level of parking availability. At the heart of each goal is the objective that people wishing to park should be able to do so with minimum search costs. As a practical matter turnover may be hard to measure (especially if space sensors have not been deployed), which means it is difficult for a city to know if it has met a turnover-related performance standard; however, availability may be simpler to measure (e.g., by occasionally conducting manual counts and supplementing such counts with meter-payment data). Turnover is also harder to enforce. Many cities adopted time limits on metered spaces to meet their turnover goals. Anecdotally it is unclear that citizens understand that a time limited meter is to be vacated at the end of the time limit. Many people think they need only return to their

### SF*park*

SF*park* is the nation's largest and most sophisticated performance-parking program to date. It includes 6,000 parking spaces in seven pilot districts and has received over $19 million in Federal funds to implement. SF*park*'s overarching goal is to price city-owned on-street and off-street parking facilities at rates that help redistribute demand and ensure that one parking space is usually available per block and that at least some parking will be available in garages. Additionally, SF*park* is intended to change public attitudes towards metered, on-street parking by providing better parking information and customer service.

The heart of the program is its technological innovation and data collection: sensors at each of the 6,000 parking spaces collect real-time occupancy information that is used to make future pricing decisions that are data-driven and easily understood by the traveling public. Smart-meters play a crucial role in the program by allowing SF*park* to charge different rates at different times and to adjust pricing remotely. The city uses an in-house database tool to link data from its various parking assets and make rate adjustments. Parking rates are set to achieve occupancy goals of 60 to 80 percent and can range between $0.25 and $6.00 per hour. Rates vary both geographically and by time of day.

SF*park* has developed a book detailing the innovative program's implementation and lessons learned. The book, "SF*park*: Putting Theory Into Practice," is available from the SF*park* Web site at *SFpark.org*.

car and "feed the meter" in order to be in compliance with the regulation. The evidence shows that meter time limits are frequently violated (Weinberger et al., 2010). Time limit enforcement used to rely on agents placing chalk marks on the tires of parked cars. Newer approaches use license plate recognition technologies but still require an enforcement agent to make frequent passes along the streets.

Technological advances have made obtaining data, setting prices, and adjusting prices much easier. New smart meter systems can accommodate multiple forms of payment, charge variable parking rates, and record data regarding usage and duration of use. These meters can be supplemented with parking sensors and license plate reader technology, both of which have been used by cities to determine occupancy with varying degrees of success.

Instituting different pricing strategies does not require advanced technology but it is made much easier and defensible with emerging meter and data collection technology. These technological advances are the subject of the next section.

# 3.0 Technology and Pricing

The tools to manage parking inventory and facilities are advancing rapidly, helping to support and make possible some of the parking pricing programs and policies discussed in the previous section of this primer. New technologies allow parking managers to collect large quantities of data at relatively low costs, which results in more transparent decisionmaking, particularly when setting parking rates. Technology advances also allow parking managers to implement dynamic pricing, increase revenue generation, offer real-time reporting, and allow for more efficient parking enforcement. At the same time that parking technology is improving the decisionmaking and management process, it is also improving the customer service experience. This combination of improvements can decrease the potential for negative reactions to new parking policies and prices.

Electronic parking meters have essentially replaced mechanical meters, offering improved security and a simplified process for changing parking rates. Today, intelligent single-space parking meters, multi-space meters, pay-by-phone technologies, and automated off-street facilities offer even more convenience and flexibility. These technologies increase the number of payment options available to users, provide more information regarding revenue and utilization, and allow for real-time updates to pricing. Advances in license-plate-recognition (LPR) technologies and space sensors further improve enforcement and data collection.

The customer benefits associated with new technologies are significant. Users can receive real-time information regarding available parking spaces and pricing, have multiple payment options, remotely extend their parking time using a phone or computer, and even be told where they parked if they have forgotten.

This section of the primer discusses available parking technologies, items to consider when selecting a technology, and options for implementing advanced parking policies with older parking assets.

## 3.1 AVAILABLE TECHNOLOGY

What follows is a list of currently available technology to accept parking payments, monitor use, and conduct enforcement. The list represents both older and newer technologies and includes assets applicable to on-street and off-street parking spaces.

### *Single-space Meters*

Single-space meters are the oldest type of parking asset and have traditionally been very limited in their ability to accept multiple payment options, adjust prices, report revenue collected, and monitor utilization; however, intelligent single-space meters have been developed that can be retrofitted into existing meter housings and accept both coin and credit card payments. These meters are solar powered, wirelessly networked to allow real-time reporting, automatically report system failures, and support dynamic pricing. Responding to other technology innovations, discussed later, they can also integrate with pay-by-phone systems and vehicle-detection sensors.

The benefits of single-space meters include the ability to pay at the space rather than at a central payment location; the presence of a visual reminder to users (i.e., the meter itself) that they must pay to park; the failure of a meter affects only one parking space rather than an entire block face or parking lot; meter mechanisms can be removed for repair at a maintenance facility; and enforcement personnel can visually determine if a vehicle is in violation. Upgrading to the intelligent single-space meters also allows existing meter housings to be reused, reducing system retrofit costs and allowing for faster installation.

### *Multi-space Meters*

The multi-space meter classification represents a broad assortment of payment and technology options. Multi-space meters are common with both on-street and off-street facilities and can support pay and display, pay by space, and pay by license plate. While each of these has unique benefits and applications, all are capable of accepting coin and credit card payments, real-time reporting, and dynamic pricing while reducing the clutter associated with single-space meters. Specific options associated with multi-space meters are summarized below:

- Pay and display requires users to walk to a central pay station, make their payment, and place a receipt on their vehicle's dashboard. This option allows enforcement personnel to determine quickly if a vehicle is in violation of time limits and, as long as time remains on users' receipts, they can move within a parking district without making additional payments. A disadvantage is that users may find it inconvenient to return to their vehicles after paying. Also, if a pay-and-display station is out of service, multiple parking spaces are affected, resulting in lost revenue.
- Pay by space functions similarly to pay and display, but rather than placing a receipt on their dashboard, users enter a space number associated with their parking space. Complaints are reduced because users do not need to return to their vehicle, but enforcement personnel must pull reports to determine which occupied spaces may be in violation of time limits, which can slow enforcement processes. It is possible to integrate this payment system with space sensors, discussed below, to simplify the enforcement process. Pay by space removes the option that allows users who still have parking time remaining to move to another space within a parking district without paying again. As with pay and display, an out-of-service station will affect numerous parking spaces.
- Pay by license plate is very similar to pay by space; however, rather than entering a space number, users enter their license plate number. The primary drawback is that some users do not know their license plate number or might key it in wrong. As with pay and display, this option allows users with parking time remaining to travel within a parking district without paying additional fees.

### *In-car Meters*

In-car meters are small, programmable devices that hang from rearview mirrors and driver's side grab bars (handles located above the driver's side window) or are placed on dashboards. The meters are pre-loaded with funds that are deducted based on the location of a vehicle and duration that it is parked. When users arrive at a parking space they select the appropriate parking zone, which tells the meter what parking rate to charge, and activate a timer that deducts funds from the user's account based on the time the vehicle is parked.

Reusable and disposable versions of in-car meters are available, and funds can be added over the phone, on the Internet, or using smart cards that are inserted into the devices. Some in-car meters contain Global Positioning System (GPS) cards that allow the meters to determine their location and automatically charge the appropriate rate. Efforts are currently underway to integrate in-car meters into vehicle navigation systems, such as OnStar. In-car meters offer an alternative to single-space and multi-space meters but do not typically replace those meters.

In-car meters allow users to pay only for the time they use, reduce the threat of vandalism, and yield higher levels of compliance. Because money is loaded onto the meters before use, parking departments have the dual benefits of receiving revenue up front while reducing collection costs. The ability to pay in the vehicle allows users to avoid standing outside to pay at single-space meters or walking to multi-space meters. Unlike multi-space and smart meters, however, in-car meters do not provide real-time information to parking managers. Some parking agencies have also expressed the concern that visibly placed in-car meters are subject to theft.


Photo credit: SF*park*

### *Pay-by-Phone*

Pay-by-phone technology allows users to pay for parking by phone, text message, or with a smart phone application. Users are typically required to preregister and provide a credit card number. There are two ways in which this system charges for parking. The first option, typically referred to as "start duration," allows the user to arrive at a parking location, enter a code associated with the location, and select the amount of time they would like to park. Some systems will send text messages or other notifications to users before their time expires and allow them to add time with their phone, so long as doing so will not cause them to be parked beyond any existing time limits. The second option, called "start stop," requires parkers to contact the system when they first park and again when they are ready to leave.

Pay-by-phone systems are typically privately operated and are capable of integrating with intelligent single-space and multi-space meters and LPR technology. The integration with LPR means enforcement officers using that technology can be automatically notified of time violations. If not integrated with meters or LPR, pay-by-phone systems require enforcement officers to check an additional database before issuing a parking violation. Any cities using pay by phone must share data regarding street sweeping, time limits, and other restrictions with the vendor to assure that the data remain up to date. Creating a process and system through which this information can be shared is a significant and potentially costly undertaking that may require changes to business processes and organizational culture; however, the end result is a system through which data can be easily shared across many departments and with the public.

Benefits include an additional, convenient payment option for users, the ability to add additional parking time remotely, and the capability to warn users if they attempt to park during a period in which restrictions are in place. The technology also reduces costs associated with cash collection and prevents users from exceeding posted parking time limits. Rates can be easily adjusted and the systems can provide utilization data.

### *Automated Technologies for Off-street Facilities*

Some parking payment technology is specific to off-street parking facilities. This technology allows staffing at facilities to be reduced and can support real-time reporting. The two primary technologies are pay on foot and pay in lane, both of which are discussed below.

- Pay on foot allows users to obtain a parking ticket upon entering a facility and make their payment at a pay station before returning to their vehicle and exiting. At exit, an exit verifier accepts the customer's parking ticket, confirms that the parking fee has been paid, and allows the customer to exit. This system speeds up the exit process and reduces staff costs; however, users may forget to take their parking ticket with them or may not realize that they must pay before exiting. Installing exit lane verifiers that can accept credit cards for payment or providing vehicle escape lanes so customers can park again and visit a pay station can mitigate this issue. Additional drawbacks associated with pay on foot are the cost of the system and the loss of attendants. (Some communities place a high priority on the assistance that attendants are able to provide to visitors in terms of way finding, payment processing, and other general help.)
- Pay in lane requires users to pay for parking in the exit lane of a parking facility using an automated kiosk. This system can be less confusing than pay on foot because it allows users to leave their parking ticket in their vehicle and does not require users to make a payment prior to returning to their vehicle. Staffing costs are reduced, but no one

will be available to offer assistance to parkers. Pay-in-lane systems cost less than pay on foot because they do not require both pay stations and exit verifiers. Exit flow can be significantly reduced with pay in lane compared to pay on foot. Pay in lane can provide a way to reduce staffing needs during less busy times when parking demand, and therefore exiting traffic flow, is low (e.g., during evening hours or on weekends).

### *License Plate Recognition Technology*

LPR technology uses cameras and optical character recognition to read license plates. The systems can be hand-held or vehicle-mounted and work in daylight and low-light conditions. Once read, the license plate is referenced against a database containing violation, payment, and other pertinent information.

LPR also serves as an enforcement and data collection mechanism. It is able to determine if a vehicle has remained in a parking space or district beyond allowed time limits or lacks a necessary parking permit. The technology can also be integrated with payment systems for off-street parking facilities. Entrance and exit barriers will automatically open for registered vehicles. If appropriate, users' accounts can be charged for the amount of time spent in the facility. LPR is also able to monitor vehicle occupancy and duration in both on-street and off-street facilities.

The systems help prevent fraud by replacing printed permits, can significantly decrease staffing requirements for enforcement personnel, can identify stolen or wanted vehicles, and can simplify duration counts. LPR technology is not perfect, however. Systems may have trouble reading some States' license plates, worn out license plates generally cannot be read, the readers are not effective if license plates are covered with debris such as dirt or snow, errors occur if enforcement personnel with vehicle-mounted systems drive too fast, and community members may raise privacy concerns.

### *Parking Space Sensors*

Parking space sensors typically use ultrasonic, magnetometer, or digital-camera technology to determine if a space is occupied. The sensors can be placed in pavement, affixed to single-space parking meters, or hung from ceilings in parking garages. Space sensors are used for enforcement, data collection, and informing users of the location of available spaces. Data can also be used to determine occupancy rates.

Photo credit: SF*park*

Data from space sensors can be posted on Web sites, accessed through smart phones, or provided on message signs so that drivers know where to find open parking spaces. In off-street facilities the increased reliability associated with sensor data (versus magnetic loops) allows occupancy to be increased from an industry standard of 85 percent to 90 to 92 percent. Newer digital-camera parking sensors are able to determine vehicle type, color, and license plate number. If people cannot find their car they can enter basic details about their vehicle and the system will tell them where their vehicle is parked.

There are some drawbacks to these systems. The current cost of space sensors keeps them beyond the financial reach of most cities and parking facility operators. In-pavement sensors can allow water to flow behind them, negatively impacting the life of paving materials. Some sensors must also be flush mounted for snow removal and require battery replacement approximately every 5 years. Privacy concerns may also be raised with the use of camera sensors that record license plate information.

### *Databases*

No company currently manufactures all types of parking technology. This means that cities wishing to use multiple types of technology, including LPR, smart meters, parking sensors, and pay by phone, will need to develop database tools to integrate data from the various systems. This is a process that can quickly become complex. *SFpark* and Seattle both had database tools developed to collect, store, and analyze data from parking assets. Personnel from SF*park* recommend that cities outsource development to assure they have sufficient staffing and skill levels. They also recommend that those staffs that will implement the tool be involved from the beginning, that one vendor not be allowed to control the process, and that cities understand that development will take longer than expected. Cities should also consider developing application programming interfaces that allow parking data to be shared with developers, who can then create applications for the public.

## 3.2 SELECTING A TECHNOLOGY

When selecting a technology, items to consider include reliability, purchase costs, installation costs, maintenance costs, staffing requirements, and revenue potential. Parking providers must determine whether the new technology needs to be integrated with existing infrastructure or if an entirely new system in needed. The data collection and analysis process will help narrow the technology options. As with other elements of parking management, selection of a final technology should be a community effort that involves affected stakeholders.

Once a technology has been selected, the parking provider needs to create a specifications package, which is generally released to vendors as part of a request for proposals (RFP) process. While RFPs need to be very clear to avoid any issues and potential challenges from bidders, many parking operators may be tempted to provide very detailed specifications that cover minutiae such as the location and color of buttons. Specify what an asset needs to do and what a report needs to contain, but maintain flexibility by avoiding unnecessary specifics.

## 3.3 DOING MORE WITH LESS

Some agencies may not have the money to purchase advanced meters, space sensors, and database solutions. Fortunately, innovative programs can be implemented with basic technology. A look at Seattle, the subject of a case study provided in section 7 of this primer, proves the point. Occupancy and duration information are the two primary data points driving price and time-limit decisions at the more innovative parking agencies. While it is much easier and quicker to collect this information with space sensors and to adjust prices with advanced meters, less technical options also exist.

In smaller downtowns it is possible to conduct license plate occupancy and duration counts that cover all or most of the inventory manually. These counts can be conducted with assistance from part-time employees or interns. Ideally, counts should be updated at least once a year or after changing prices or time limits. In larger communities it may not be possible to analyze all parking facilities on a regular basis. In this situation conducting counts in sample areas that are representative of the larger community can reduce costs. LPR technology can significantly decrease the staff time required to conduct occupancy and duration counts.

If a community has advanced meters but lacks space sensors, meter payment data can be used to roughly estimate parking occupancy and duration. SF*park* and other agencies are developing processes for doing this in an accurate manner. Meter data can be supplemented by manual counts.

Adjusting prices on an annual basis, rather than quarterly or monthly, will further reduce the staff time needed to implement a performance-based parking policy.

## 3.4 GOING FORWARD

In the future, technology will become more affordable, integrate better, and offer more opportunities for sharing data. Cities and municipalities are likely to use overlapping technologies such as parking meters, pay by phone, and LPR technology, which will likely result in increased demand for improved data integration. In turn, this should make it easier for cities to integrate parking payment and enforcement systems.

Improvements in LPR technology should make the collection and tracking of occupancy and duration data easier as well, and the way in which parking data are shared is also likely to change. Online and mobile tools that allow parkers to check on the availability and cost of parking are just beginning to appear, and their presence in the marketplace is likely to increase significantly in the future. The integration of radio-frequency identification chips that allow cell phones to communicate with nearby electronics will likely give parkers one more way to pay. The potential to integrate mobile devices into the payment, data tracking, and parking space locator functions should offer significant opportunities to innovative manufacturers and communities.

Mechanical parking meters ruled the world of parking for decades, negating the need for parking managers to monitor new technologies and manufacturers. Today a parking agency must carefully examine its technology options and attempt to see far enough into the future that its asset purchases do not become quickly outdated.

| Technology | Accepts Cash (coins or bills) | Accepts Credit Cards | Requires User to Return to Vehicle | Time Can Be Added Remotely | Outage Affects Multiple Spaces | Provides Real-time Reporting | Transferable within a Parking Zone | Off-street Only | Potential Challenges | Cities Using the Technology |
|---|---|---|---|---|---|---|---|---|---|---|
| **Single-space Meters** | | | | | | | | | | |
| Electronic | Yes | No | No | No | No | No | No | No | Difficult to change pricing, limited revenue reporting, on-street "clutter" | New York, NY; Boston, MA; Phoenix, AZ |
| Intelligent | Yes | Yes | No | Yes | No | Yes | No | No | Cost and on-street "clutter" | Denver, CO; Atlanta, GA; Seattle, WA; Los Angeles, CA |
| **Multi-space Meters** | | | | | | | | | | |
| Pay and Display | Yes | Yes | Yes | No | Yes | Yes | Yes | No | Users must walk back to car to place ticket on dashboard | New York, NY; Miami, FL; Long Beach, CA; Portland, OR; Washington, DC |
| Pay by Space | Yes | Yes | No | Yes | Yes | Yes | No | No | Users must remember their space number | Las Vegas, NV; Minneapolis, MN; Portland, ME; Atlanta, GA |
| Pay by License Plate | Yes | Yes | No | Yes | Yes | Yes | Yes | No | Users must know their license plate number | Regional Transportation District, CO; Calgary, Canada |
| **Automated Technologies for Off-street Facilities** | | | | | | | | | | |
| Pay on Foot | Yes | Yes | No | n/a | Yes | Yes | n/a | Yes | Can be confusing to users, no parking attendants to provide assistance | Milwaukee, WI; Cincinnati, OH; Seattle, WA; Bozeman, MT |
| Pay in Lane | Yes | Yes | No | n/a | Yes | Yes | n/a | Yes | Exit flow can be reduced, no parking attendants to provide assistance | Wilmington, NC; Lansing, MI |
| **Other Options** | | | | | | | | | | |
| In-car Meters | No | Yes | No | n/a | No | No | Yes | No | No real-time reporting, subject to theft | Aspen, CO; Miami Beach, FL; New York, NY |
| Pay by Phone | No | Yes | No | Yes | Yes | Yes | Yes | No | Cities must create a process and system for sharing parking information across multiple departments | Washington, DC; Aspen, CO; Fort Lauderdale, FL, San Francisco, CA |

# Employer and Developer Focused Parking Pricing Strategies

# 4.0

Previous sections of this primer discussed pricing policies and tools that can be used to manage city-owned parking spaces and facilities. In most communities city-owned or controlled parking represents only a small proportion of the total parking available, and privately owned parking is often made available at no cost to drivers. Shoup estimates that 95 percent of commuters receive free parking at work (1997), and this free parking is not limited to suburban and rural locations; over 50 percent of automobile commuters in the central business districts of cities like Los Angeles, New York, and London receive free parking paid for by their employer (Wilson and Shoup 1990b, Schaller Consulting 2007, Department of Transport 1992).

While cities cannot directly control whether an employee receives free parking, a number of strategies exist to encourage employers and developers to charge for parking or, minimally, make employees more aware of the true cost of parking. Applying a cost to parking can reduce the number of people who drive alone, maximize the utilization of transportation facilities, and encourage more efficient land use.

Cities have the opportunity to influence three primary areas of commuter parking. First, cities can work with employers and developers on employee trip reduction programs that include parking pricing strategies. These can be voluntary or mandatory, depending on the severity of the problem. The transportation demand management field has found that parking cash out and transportation allowances can be used to raise commuter awareness of parking costs and encourage employees to walk, bike, carpool, or take transit to work. Parking cash out provides a payment that can be used to purchase transit fares or kept as cash to employees who elect to give up their employer-owned parking space. Transportation allowances are stipends provided directly to employees who can then choose to purchase parking, buy transit passes, carpool, or pocket the money for another use. There are many supporting strategies in the transportation demand management field that are not discussed in this primer, but can also influence an employee's commute behavior.

Cities have a second opportunity to influence commuter parking through zoning and development regulations. Cities are able to encourage developers to charge for parking separately from office space, a strategy often referred to as "unbundling" that allows employers to see financial benefits when they stop paying for employee parking. Unbundling in residential developments can also influence commute behavior and vehicle ownership levels. In addition, zoning codes can be written to encourage the allocation of parking for car-share vehicles,[2] free or discounted parking rates for carpools and vanpools, and the establishment of secure bicycle parking.

Cities can also design and charge parking taxes to encourage employers and developers to charge for parking, discourage the construction of excessive quantities of parking, and encourage more efficient land use. These strategies are detailed further below.

[2] Car sharing is a business model wherein users sign up for a membership and are able to rent cars by the hour. It is particularly suited for urban areas where car ownership is less desirable due to the prevalence of public transportation. This demand management mechanism is discussed in greater detail in section 5.

## 4.1 PARKING CASH OUT AND TRANSPORTATION ALLOWANCES

Parking cash out and transportation allowances are similar economic incentive tools. Parking cash out is effective when employers provide free parking to employees, often in employer owned or leased lots. Employees who choose to give up their parking space are offered a payment that can be used to purchase transit fares or kept as cash. Employees typically participate in cash out on a monthly basis, but daily cash out programs do exist. With daily cash out employees receive a set amount of money for each day that they choose to not drive to work. Parking cash out is a better strategy than direct parking charges at employment sites where a move to paid parking is likely to cause significant employee morale issues or where management, for whatever reason, is unwilling to ask employees to pay for parking.

Transportation allowances are provided directly to employees, who can then choose to purchase parking, buy transit passes, carpool, or keep the money. Transportation allowances are best used when employers do not own or lease parking spaces and failure to cover employees' parking costs may put the company at a real or perceived hiring disadvantage. In both cases, payments are tax exempt up to Federal limits when spent on parking, transit, vanpooling, or bicycle commuting.

Parking cash out and transportation allowances are successful because they apply a value to a commodity that is often perceived as free and allow employees to make travel decisions that maximize their individual welfare. The programs are palatable because employees are not asked to bear the actual cost of parking if they do choose to park. Employers can implement these policies on their own to help them compete for the best workers, or cities or states can mandate or incentivize their implementation to encourage reductions in driving.

Both cash out and transportation allowances have shown significant benefits in terms of reducing employee vehicle trips and parking demand. Shoup evaluated eight employer cash-out programs in California and found that, on average, the programs reduced drive-alone trips from 76 percent to 63 percent of total commute trips, increased carpooling from 14 percent to 23 percent, increased transit trips from 6 percent to 9 percent, and increased walking from 2 percent to 3 percent (1997). De Borger and Wuyts created a model using Belgian data to evaluate the effectiveness and costs of parking cash out. Their model results showed that parking cash out reduced car commuting by approximately 8.5 percent and increased transit use by 17 percent (2009). Within the model, congestion was also significantly reduced, with average speeds rising to almost 50 km/hour from 40 to 43 km/hour. Actual benefits will vary by geography. Shoup notes that trip reductions will depend "on the market price of parking at the worksite" (1995, 15).

Even if users are paying for their own parking in the form of a fixed-cost monthly parking pass, such a product can be redesigned to reward regular parkers with reduced costs or rebates for days they do not park. Such a redesign might be instituted by the parking operator or an employer offering a parking subsidy, but in either case it may be considered "daily parking cash out" if a financial incentive is provided for each day that parking is foregone. Alternatives to monthly parking passes were tested in Minneapolis, Minnesota, in 2010 and 2011. This research targeted purchasers of monthly parking passes and examined the effects of various alternative incentives. These incentives were either bundled with the parking pass or offered in the form of a restructured parking pass enabling both onsite parking and a choice of financially-attractive alternatives. Programs tested included:

- Buying Flexibility, where a heavily discounted monthly transit pass (i.e., $20 instead of $130) was made available for purchase in combination with the parking pass (despite very heavy marketing, only 14 people purchased this, and while results clearly seem to indicate reduced parking and more transit use, the sample size was too small to find statistical significance);

- Disincentive Removal, where a monthly transit pass was provided for free to purchasers of monthly parking passes;
- Marginal Rebate, where a monthly transit pass was provided free to purchasers of monthly parking passes, and those taking transit instead of parking any day of the month received a $2 rebate, which is reflective of the marginal parking cost of $7 per day and the marginal transit cost of $5 per day; and
- PayGo Flex-Pass, which is the same as Disincentive Removal, except that a rebate of $7 would be provided on days where neither parking nor transit was used (with the total monthly rebate capped at half the cost of the monthly parking pass).

The most flexible and successful of the incentive programs studied, PayGo Flex-Pass, led to a decline in driving days from 78.5 percent to 56.5 percent, a large reduction (Lari, et al., 2011).

Travel allowances have also proved successful at changing travel behavior. Los Angeles County replaced free parking for its employees with a travel allowance and saw solo driving decrease from 53 to 47 percent of commute trips. CH2M Hill in Bellevue, Washington, replaced free parking with a travel allowance and saw solo driving decrease from 89 to 64 percent of commute trips (USDOT, 1994).

As with any changes made to parking, cash-out programs and travel allowances can present challenges, but they may be overcome with careful implementation. The programs are also likely to increase costs slightly for employers; if employees do not use their payments for tax-deductible transportation expenses, employers must pay employment taxes on the amounts. Employers will also incur administrative costs. All these costs could, however, be offset by small reductions in travel allowances or parking subsidies (i.e., charging employees who decline a cash-out offer a small fee for parking).

**The United States Government** has developed a number of documents to assist governments and employers that are interested in implementing cash-out programs. The FHWA's Non-toll Pricing: A Primer (2009) provides an overview of parking cash out. The Federal Transit Administration's (FTA's) TDM Status Report: Parking Cash Out (1994) provides travel reduction benefit estimates and implementation steps for government agencies wishing to implement parking cash out. The EPA's Parking Cash Out: Implementing Commuter Benefits as One of the Nation's Best Workplaces for Commuters (2005) is a how-to guide for employers wishing to implement a parking cash-out program. The EPA's report also includes information on employer benefits and tax considerations. Less information has been published regarding travel allowances; however, the two strategies do not differ significantly in terms of implementation or cost.


Photo credit: FHWA

## 4.2 UNBUNDLED PARKING

The cost of parking for residential units and commercial space is often included or "bundled" in lease or purchase costs. This means that parking costs are "sunk" and cannot be avoided regardless of actual need. This serves as a disincentive to companies to offer cash out, as any reduction in parking space utilization will not be accompanied by an equivalent reduction in parking costs. It also encourages car ownership because residential renters or lessees will see no financial gain from reducing their off-street parking needs. "Unbundling" the cost of parking from commercial and residential leases and purchases addresses these issues by allowing buyers and lessees to purchase or lease only as much parking as they need.

The unbundling of parking at commercial locations has no direct effect on travel behavior if employers pay for their employees' parking. However, unbundling creates a financial incentive for employers to implement strategies that decrease the number of employees who drive to work. Unbundling also places a clear price on parking that employers may choose to pass on to employees.

In the residential setting, unbundling of parking can directly impact travel behavior. An analysis of the impacts of off-street parking on car ownership and vehicle miles of travel in New York City "strongly suggests that the provision of residential off-street parking effects commuting behavior" (Weinberger, et al., 2009, 24). Thus, decreasing the amount of off-street parking, which unbundling encourages, is likely to result in decreased vehicle trips among commuters.

An interesting study on managing residential parking in San Francisco with car sharing and unbundling examined the effects of two residential parking requirements there: that residential projects of 50 units or more offer one or two car-sharing spaces, and that off-street parking at residential projects of ten units or more be leased or sold separately from the property. The study found these policies to result in a significantly lower rate of household vehicle ownership and a higher rate of car-sharing membership. The most significant finding of the study was that the combination of unbundling parking with on-site car sharing vehicle access corresponded to an average vehicle ownership rate of 0.76 per household—which was a statistically significant reduction from the statistically indistinguishable rates of 1.03, 1.09, and 1.13 vehicles per household—where buildings had neither car sharing nor unbundling, car sharing only, and unbundling only. Clearly, then, there is a market in San Francisco, and likely elsewhere, for housing with unbundled parking and car sharing where residents respond with reduced vehicle ownership, and presumably take some of their savings and spend it for better housing and to occasionally use car sharing (ter Schure, et al., 2011).

Some developers have expressed concern that unbundled parking requirements may affect their ability to obtain loans. If parking utilization rates are lower than anticipated, the developer may not realize as much revenue as expected, which could affect loan repayment. It is therefore important that cities not require parking minimums when asking or requiring developers to offer unbundled parking.

Ideally unbundled parking will allow residents and employees to purchase parking on a monthly or even daily basis. In the case of commercial parking the spaces can be rented through the property management association or a third-party parking manager. In the case of residential parking, spaces can be leased through the homeowners' or umbrella owners' association. Each option allows businesses and residents to purchase only as much parking as they need.

## 4.3 PARKING TAXES AND FEES

Parking taxes and fees can affect travel behavior by decreasing the amount of available parking, increasing the cost of parking, or encouraging employers and developers to pass the cost of parking onto drivers. Fees and taxes do this by increasing the construction or maintenance cost of parking or by directly increasing parking rates. Drivers are able to respond to higher parking rates or lower availability by parking in another location, changing their travel mode, or changing the timing of their activities (Feitelson and Rotem, 2004). Taxes and fees are most appropriate when applied to parking that is not mandated or required by land use regulations.

The effect of parking taxes and fees is dependent on the type of tax used and the manner in which it is charged. Taxes can be placed into two primary categories: (1) taxes and fees charged to users and (2) taxes and fees charged to parking facility owners. User taxes and fees are typically charged on a per-transaction basis. They may be a percentage of the cost to park or a flat amount and typically only affect facilities where users are charged to park; although, such a limitation is not necessary. Taxes and fees charged to facility owners can be based on land value, surface area, or number of available parking spaces. These taxes and fees are extremely flexible: lots that charge parking fees can be excluded, credits can be issued when preferred spaces are offered to carpoolers or car-share vehicles, and garages and subterranean lots can be excluded or charged based on land area rather than facility square footage. Owner fees and taxes can exclude facilities that are charging market rates, which allows facilities that are already engaged in efficient parking management to avoid the fees and taxes. Funds from parking taxes and fees can be invested in transit and other transportation improvements that increase the number of travel options available.

User fees and taxes increase the cost of parking and encourage the use of non-auto travel modes and/or the shifting of travel times. Chicago currently charges a $3.00 per day tax for all vehicles that park in the central business district. San Francisco has a fee structure that provides a $2.00 discount to vehicles that enter a parking garage before 7:30 a.m. or leave after 7:30 p.m. and stay for at least 3 hours (for a total discount of up to $4.00). The discount is designed to encourage travel outside of peak congestion periods. Numerous other cities charge taxes that are a percentage of parking fees paid by drivers, including Cleveland at 8 percent, Santa Monica at 10 percent, San Francisco at 25 percent, and Pittsburgh at 37.5 percent, the nation's highest (Alleghany Institute 2011). The taxes do not affect parking lots where parking is provided for free.

Selecting an appropriate fee or tax rate must be done carefully. Richard Voith developed a model that identifies parking tax rates that maximize central business district (CBD) size and land values (1998). His model showed that appropriate parking taxes can increase land values and community size and that failure to charge a tax may result in excessive congestion, which reduces community size and land value. However, if taxes are set too high the result will be lower congestion but smaller CBDs and lower land values. Additionally, transaction taxes may encourage some employers to move from paid parking to free parking in order to avoid the tax.

Unlike most user fees and taxes, facility-owner fees and taxes can impact parking facilities even if parking is offered for free. However, fees charged based on number of parking spaces or surface area remain relatively uncommon in the United States. The fees have been successfully implemented in Sydney, Perth, and Melbourne in Australia. Sydney charges a flat fee per parking space, Perth charges a variable fee based on use, and Melbourne charges a fee only for spaces that are designated for long-term use. All three cities charge an annual fee; however, fees could also be charged at the time of construction or issuance of a use permit. If annual fees are charged they can be collected with property taxes or individually. Calculation of fee amounts can be made using data from tax databases, data from storm water agencies that collect information on impervious surface area, site visits, and aerial photographs. Excluding properties that charge minimum parking rates from the taxes can encourage pricing of lots that would otherwise be free.

Feitelson and Rotem argue in support of taxing surface parking (2004). They suggest that a "flat surface parking tax should be considered as an alternative to minimal (or maximal) parking requirements" and note that, "A flat parking tax will clearly raise the cost of providing surface parking" (Feitelson and Rotem, p. 324). At least some of the increased cost will be passed on to users in the form of higher costs, which will affect parking patterns. Unfortunately, it is not clear what percentage of a parking tax will be passed onto employees (Calthrop et al., 2000). For parking taxes to affect the behavior of commuters, they must be passed onto the commuters (Gerard et al., 2001). Therefore, the effectiveness of parking taxes may be limited depending on the response of employers.

## 4.4 IMPLEMENTATION

To help employers implement commuter parking strategies, numerous tools and references exist, some of which were cited previously. This section focuses on implementation options and considerations for municipalities and States wishing to encourage employers to implement cash out and transportation allowance programs, encourage developers and property managers to offer unbundled parking, or institute parking fees or taxes.

California has been the most aggressive State when it comes to the implementation of commute options programs. In 1992, the State passed a parking cash-out law that requires employers with 50 or more employees in air basins designated as non-attainment areas and that provide subsidized parking to their employees to instead offer a cash allowance in lieu of the parking space. The law does not require that employers provide a commute subsidy of any type nor does it require them to raise the cost of parking—it simply requires that employers choosing to subsidize parking also offer a choice in their benefits package, thus removing some of the incentive to drive. A related California code requires cities or counties to grant appropriate reductions in parking requirements to new and existing commercial developments that offer parking cash-out programs.

Fairfax County, Virginia, encourages parking cash out and unbundled parking programs during the development review process. Certain developments are required to implement transportation demand management (TDM) programs and obtain specified vehicle trip reductions. TDM plans must be submitted to the county prior to development approval, and development proffers guarantee that promised cash out and unbundled parking programs (and other TDM strategies) are implemented. This policy is relatively new, and its long-term benefits are not yet known. Many other communities throughout the United States require developers and employers to implement TDM plans; however, inclusion of cash out, transportation allowances, or unbundled parking programs is typically voluntary.

San Francisco encourages unbundled parking through low parking maximums. In downtown San Francisco developers can build only 0.75 parking spaces per housing unit and that number drops as low as 0.5 in some neighborhoods. Preventing developers from constructing at least one parking space per housing unit can be a big inducement to unbundle parking at residential units. In such cases, developers failing to unbundle parking would be left with the unappealing prospect of having to sell or lease units that are guaranteed to lack access to off-street parking.

The mechanism through which parking taxes and fees can be implemented will vary by state and local government. The process should be well known to government officials, but careful consideration is recommended. The Ontario provincial government unsuccessfully attempted to implement a commercial concentration tax, similar to a property tax, that affected large-scale, paid-parking facilities. The tax had the adverse effect of causing those controlling suburban parking facilities that had charged low fees to discontinue those fees to avoid the tax. In most cases the tax exceeded the earned parking revenue, which made it cheaper for parking facilities to stop charging for parking than to pay the tax. This resulted in the majority of the tax's revenue being generated in the Toronto CBD where the tax represented a small cost in proportion to total parking revenue. While tax funds were coming primarily from the CBD they were being spent outside of Toronto, causing significant discontent. These negative impacts were not anticipated and the law was quickly repealed (IBI Group, et al. 2000).

When implementing commuter parking pricing strategies, government agencies need to consider a number of items that are described below.

- Any new policies should be developed in coordination with developers and employers.
- Many communities have regional or local commute options agencies that can assist with strategy development and program implementation.
- Developers should not be forced to construct and maintain more parking than there is demand for. The policies that fail to assure this will force developers to work to simultaneously reduce parking demand while financing and maintaining unused parking spaces. As is the case in California, developers should be allowed to decrease the number of available parking spaces if demand decreases.
- Parking cash-out policies are likely to create spill-over effects if nearby parking is not restricted or priced. Some sites have documented that occasionally employees who accept a parking cash out continue to drive but park in a nearby neighborhood where parking is free. Employers can help address this externality by developing policies that prohibit cash-out recipients from parking in residential neighborhoods and revoking program eligibility for employees who fail to comply. Government agencies can help address this issue by following the model of California's cash-out law, which explicitly allows employers the ability to revoke eligibility when employees fail to comply with company established cash-out guidelines. Charging or requiring permits for parking in affected residential neighborhoods, as discussed in the Residential Parking Permit section of this primer, can also address the issue.
- Programs must recognize that most employees will occasionally need their vehicle for errands before work, at mid-day, or after work and should provide parking options for these individuals. This can generally be done by providing commuters with a limited number of free parking days or allowing them to purchase parking on a daily basis.
- All programs should include measureable performance goals that are tracked after program implementation.

An effectively implemented commuter parking pricing strategy can reduce vehicle trips. The strategies discussed assign a value to parking that would otherwise be free or offered at an artificially low rate to the user. Overall, commuter parking pricing strategies offer some solutions to address the market distortions created by the supply of free commuter parking.

# 5.0 Preferred User Accommodations

Successful implementation of new parking pricing policies requires that cities address special parking needs and priorities that can undermine cities' ability to manage their overall parking system effectively. The preferred user accommodations reviewed in this section include residential parking permits, commercial loading, disabled parking, government employee parking, and car sharing.

Residential parking permit policy has seen little innovation, but a few programs show that on-street parking in affected neighborhoods can be better managed. Commercial loading zones, often free of both cost and time limits, have been known to fill, leading to double parking that blocks traffic during peak business hours. Special strategies or tools for disabled parking are important for improving access for the disabled, but fraudulent use of parking placards can monopolize spaces in high-demand areas, contributing to congestion, poor parking availability, and cruising for parking. Free government parking passes are a common benefit for public employees; however, this benefit impedes parking management by encouraging single-occupant vehicle commutes and the overuse of limited parking spaces in congested central civic locations. Allocation of parking for car-share vehicle storage is a recent consideration that is being addressed differently across the United States. Traditional exceptions to parking rules for preferred users, often meant to be small-scale solutions, have, over time, had large-scale implications and need review and reassessment.

## 5.1 RESIDENTIAL PARKING PERMITS


Photo credit: City of Boulder

The goal of residential parking permits (RPP) is to protect neighborhood parking by limiting its use to residents of a defined area. Innovation with RPP has been slow to evolve, especially when compared to the amount of innovation with other preferred user parking accommodations discussed later in this section. This could be the result of legislation found in many communities and some States that restricts the price of permits to the actual administrative cost of their issuance. Annual residential parking permits are $100 in San Francisco; $35 in Washington, DC; $25 in Chicago; and free in Boston. Cities have experimented with RPP by implementing various restrictions that range from the number of parking passes a household can receive to what types of households are eligible to receive a residential parking pass. Several cities limit the number of passes per household, which reduces the potential for abuse (e.g., residents reselling extra passes).

Aspen and Boulder provide examples of the monetization of excess residential parking spaces. While neither city charges its residents market-rate fees for parking permits, each city has found that it can monetize excess capacity in the neighborhoods and does so by allowing visitors to purchase parking passes. Aspen sells daily visitor passes for $7.00 and monitors parking occupancy rates to assure that sufficient parking capacity exists for neighborhood residents. (This program is discussed in more detail in the Case Studies section of this primer.) Boulder offers quarterly commuter parking passes that are good in residential parking zones. Area commuters who work in Boulder's downtown core are allowed to purchase these passes (City of Boulder, 2012). While the program has had success in maximizing the city's parking potential, at no harm to its residents, the guest-parking program currently has a wait list, indicating that its price does not reflect its true market value.

Cincinnati is considering applying advanced pricing and management principles to its residential parking. The CUF Neighborhood Association, which represents the Clifton Heights, University Heights, and Fairview neighborhoods, formed a committee in 2010 to address oversubscribed on-street parking and the excessive circling and congestion that result. The committee has completed its proposal to manage roughly 3,000 on-street parking spaces. Authority would be given to the Department of Transportation and Engineering to set both monthly residential permit prices and short-term meter prices to achieve an 85 to 90 percent occupancy rate. Prices would be set to be somewhat more favorable to residents than to short-term visitors.

Despite these advances, additional innovation is needed in the realm of RPP programs. Residents are being offered access to a community asset at little or no cost. In addition, the issuance of RPPs does not guarantee that access is maintained. Many cities refer to RPPs as a "hunting license" due to the limited availability of parking spaces, especially in high-density areas. The alternative to using RPP pricing to curtail parking spillover onto the curb in high-density residential areas, such as the above-noted Cincinnati proposal, is the imposition of minimum parking requirements, which raise housing prices by many tens of thousands of dollars per unit. Policies that improve neighborhood access, and recognize the true value of curb parking in residential neighborhoods need to be pursued.

## 5.2 COMMERCIAL LOADING

Delivery parking for commercial vehicles is at a premium on busy urban streets in the United States. In business districts, on-street commercial parking is seldom adequate to fully satisfy the volume of deliveries in a single day, and yet this finite resource is largely provided for free. The failure to supply and price commercial parking adequately impacts the mobility of cars, buses, and pedestrians alike, as delivery trucks will often park illegally if a space is not available. What results is a rippling effect of double parked commercial vehicles, cars, and buses taking over bike lanes combined with illegal curb parking that invades pedestrian space and blocks pedestrian crossings. Commercial loading zones and delivery parking are an essential component in any parking management plan; increasing availability and decreasing demand are two essential strategies that will alleviate congestion and improve service. Parking pricing can be an effective tool to encourage turnover of spaces and off-hour deliveries.

New York City implemented a pilot program along congested Midtown streets in 2000 to address commercial loading issues. The pilot was successful and subsequently expanded to include Chinatown and all commercial areas in Manhattan between 14th and 60th Streets. The program replaced unpaid commercial parking with hourly metered rates for all commercial loading zones and used an escalating pricing scale: the first and second hours cost $2.50 each and the third hour costs $4.00 (Schaller et al., 2010). Pre- and post-program measurements found an average reduction in minutes parked from 160 to 45, with only 25 percent of all commercial vehicles parking in the same space for more than 1 hour. The program has been particularly successful at improving mobility on narrow cross-town streets, which are commonly rife with double-parked vehicles and blocked traffic. The program is supported by the commercial delivery industry and has shown that escalating pricing is an effective tool for encouraging commercial parking turnover.

Photo credit: City of Seattle

New York City implemented an additional pilot program in 2009 to encourage commercial deliveries outside of regular business hours. The program targeted large freight companies with a demonstrated commitment to sustainability and that exceeded 100,000 trips per day into Manhattan (Solomonon & Gastel, 2010). The goal was to shift deliveries to times between 7:00 p.m. and 6:00 a.m., thereby reducing street congestion and illegal curb and double-parking practices. Originally eight delivery companies and 20 of their client businesses participated in the program; on-time delivery to first stops improved by 75 percent. Further results found carriers were able to save on fuel costs and time by making more total deliveries in off-hours. Businesses benefited by being able to focus staff time on customer service during peak business hours rather than on processing deliveries (Cassidy, 2010).

Philadelphia has taken alternative measures to address parking and congestion problems related to commercial vehicle deliveries. First, Philadelphia created commercial loading zones that allow deliveries on main streets from 6:00 a.m. to 10:00 a.m., with afternoon deliveries delegated to side streets. Designated loading zones were allocated only for delivery vehicles during morning hours but open to general parking later in the day. Then, to let commercial operators know that enforcement would be implemented, the city purchased vehicles capable of towing delivery trucks. Philadelphia stresses enforcement policies, and being able to tow delivery vehicles has greatly improved parking compliance among commercial vehicle drivers.

## 5.3 DISABLED PARKING


Photo credit: FHWA

Free disabled parking has been accepted practice in the United States for decades running; however, increased demand for parking, increasing occurrences of disabled placard abuse, and a general need for better parking management by cities has many rethinking the paradigm of free and unlimited parking benefits for disabled persons. During most of U.S. history, access to basic services was a daily challenge for individuals with a disability; public transit rarely accommodated wheelchairs, and parking spaces were often too far from services for disabled people to access easily. An attempt was made by policy makers during the post-World War II period to alleviate these barriers by allowing free parking without time limits at street meters to individuals with a disability. The sole requirement was that disabled persons register and display official placards, license plates, or other disabled identification documents while parking. These policies were enacted from coast to coast and often at the State level.

The American's with Disabilities Act of 1990 (ADA) ushered in a new era of increased accessibility for disabled persons. Public transit now is required to accommodate the needs of the disabled population, and off-street parking facilities must allocate 2 percent of total parking spaces for individuals with disabilities. ADA accessibility standards for transit and off-street parking are explicit; however, street and metered parking standards are vague. This vagueness has allowed free parking for disabled persons to remain a national standard practice.

As a result, the free parking benefit has made disabled placards a desired commodity, opening the door to abuse. In addition, since the inception of the ADA parking benefit standards, the definition of "disabled" has expanded, yielding a greater number of drivers who qualify for this benefit. Conversely, the stock of metered parking spaces, especially in dense, high-demand areas, has remained relatively constant. Many localities are now experiencing a disproportionate number of disabled drivers compared to the overall number of registered vehicles. The California Department of Motor Vehicles reported a 350 percent increase in the number of disabled placards issued in 2010 compared to 1990, a rate that is far higher than the population growth rate (Lopez, 2012).The baby boomer generation, now reaching retirement age, will only add to the total number of disabled drivers.

Beyond the expansion of eligibility, recent studies throughout the country have documented the fraudulent abuse of disabled parking by people without a disability, who are parking for free and without time limits in the most convenient and desirable parking places. In 2011 the City of Seattle published a report indicating that 30 to 40 percent of metered parking in its downtown core was occupied by vehicles displaying disabled parking placards (Seattle Department of Transportation, 2012). Violators see the value of free parking, especially in high-demand areas, and therefore use either a family member's or friend's placard illegally; additionally, placards of deceased persons are seldom collected, presenting another opportunity for fraudulent use. This abuse of disabled parking benefits affects disabled people and their ability to access services no differently than the population at large.

Parking experts are thinking anew about parking benefits for disabled persons. The goal of accommodation is still at the forefront, but with the understanding that this should not be allowed to interfere with the effectiveness of parking management strategies. Variable pricing and additional parking strategies will have limited impact if 10 to 40 percent of high-demand, metered spaces are occupied for an indefinite amount of time, at no cost, by drivers with disabled placards. Unfortunately, cities frequently lack jurisdiction over disabled parking. Many States, including California, Illinois, and Texas, offer disabled parking benefits as a statewide policy, leaving local jurisdictions with a limited ability to manage disabled parking.

Arlington County, Virginia, was one of the first communities nationwide to address disabled parking placard abuse and its impact on effective parking management. During the late 1990s, Arlington had a problem of low parking availability due to excessive and fraudulent placard use. The Arlington Disabled Commission approached Arlington County asking it to address these problems and offered support for the elimination of free metered parking altogether. According to an Arlington County parking manager, community support was garnered from inception, and local officials could therefore engage State officials in an attempt to revise State disabled parking ordinances, a necessary step as Virginia State law limited local jurisdictions' power in managing disabled parking. Through this process Arlington, and therefore other Virginia municipalities, gained greater flexibility and enforcement ability with regard to parking management practices. With the necessary structural changes in place, Arlington County rolled out its "All May Park, All Must Pay" program in 1998, which stopped all-day fraudulent use of disabled placards. Drivers with a placard were required to pay for parking but were allotted twice the time period to access services.

The District Department of Transportation (DDOT) in Washington, DC is building from Arlington's program and implemented a disabled parking pilot program in 2012. The goal of the program is to create better access for disabled persons. The District's old policy allowed disabled drivers to park for free at meters District wide (District Department of Transportation, 2012). Under the pilot program, a total of 400 meters, the domes of which are painted red to be visibly different from regular meters, provide two spaces per street block for better access for disabled drivers in commercial zones. Only disabled individuals displaying official placards are allowed to park at these red-domed meters. For the first time disabled drivers in the District will be charged to park, but with the new

meters they will be allotted twice the amount of parking time for the price. By replacing free parking, the program aims to discontinue the prime incentive for abuse, according to the DDOT. As a part of the pilot effort, District-wide informational campaigns were conducted by DDOT staff to elevate awareness about the change.

The State of Michigan has also implemented a change in its law, allowing only those individuals in a wheelchair or unable to operate street meters to qualify for free metered parking. All other disabled persons are allowed to park in handicapped spaces in off-street facilities. Prior to the law change, 500,000 disabled parking placards were in circulation, and each holder was allowed to park for free. After enactment of the new law, only 10,000 people, or 2 percent of the previous 500,000, were allowed to park for free. The Michigan law gives free parking only to those most in need, requires a doctor's certification with the application process, and uses a new yellow placard, a clear differentiation from the traditional blue disabled badge (Fusco and Maloney, 2012). Illinois State officials have initiated similar legislation that would revise the qualifications for free disabled parking in metered on-street spaces beginning in 2014.

States and cities are also increasing the penalties for placard abuse. The State of California granted municipalities the authority to increase fines for placard abuse from $250 to as much as $1,000. Beginning in 2012, Chicago began issuing fraudulent placard users fines, ranging between $500 and $1,000, while simultaneously impounding their vehicles at an additional cost of $1,500 to $3,000. Furthermore, people with a registered placard can be charged a $200 fine for allowing others to use their placard to park for free (City of Chicago, 2011). Each of these fines, noticeably more severe, are intended to deter people from misusing placards to park for free.

Best practices pertaining to disabled parking include:

(1) Verifying whether State legislation exists and, if so and it prevents implementing best practices, working to make changes;

(2) Determining what parking managers are legally allowed to do;

(3) Increasing fines (if parking managers don't have legislative approval to charge for parking);

(4) Eliminating free parking completely, limiting it to those in wheelchairs or who are unable to use a meter, or doubling the amount of allowed time.

Most importantly, parking managers should coordinate with the disabled community and seek its approval and support for any changes.

## 5.4 GOVERNMENT EMPLOYEE PARKING

Free parking benefits for government employees can easily undermine a city's transportation goals, particularly as parking near government offices is often at a premium. As with anyone offered free parking benefits, government employees are drawn to its convenience and economic advantage. The issue of free parking is complicated because many government employees work in CBDs where parking is in limited supply. A study was conducted in New York City to determine how free parking for government employees affects their travel behavior. The New York City Department of Transportation issues its workers parking placards that allow them to park for free at any legal, metered, on-street space while conducting official business. That study, based on 2000 Census data, found that government employees are significantly more likely to drive to work than their peers. If the studied employees drove alone at the same rate as their peer group, there would be 14,000 fewer cars entering the Manhattan CBD each day (Schaller Consulting, 2005). These findings are supported by an additional study of New York City commute behavior that found a positive correlation between government employment and the likelihood that a person will drive to work (Weinberger 2012).

Studies also found illegal parking by employees to be a common occurrence throughout busy civic areas, negatively impacting pedestrian safety, economic activity, emergency vehicle access, and public perception of government employees (Schaller Consulting, 2006).

There has been some discussion of addressing employee parking issues in New York City by offering employees recurring cash payments to relinquish their parking placards. This would be the equivalent of a parking cash-out program. It would be possible to price the cash out at a value lower than the revenue currently lost from employees parking at meters that could otherwise generate revenue. Another option that has been discussed is to offer employees in-car meters loaded with a negotiated value that allow employees to park throughout the city. The meters would be an employee benefit that would replace parking placards that offer unlimited free parking.

San Francisco has revised its employee-parking benefits as part of its larger parking program adjustments. In one initiative, San Francisco Municipal Transportation Agency (SFMTA) employees, many of whom were parking for free at off-street lots attached to various facilities (e.g., bus yards), lost the privilege to park for free. All SFMTA employees must now pay to park unless the right to free parking is in their labor agreement. In a second initiative, all city vehicles lost their exemption from paying meters and adhering to parking time limits. A few exceptions exist for vehicles such as police, fire, and maintenance.

The City of Austin, Texas is initiating a pilot parking cash-out program in the spring of 2012 in lieu of free employee garage parking. The goal of the program is to reduce peak traffic congestion and increase the availability of visitor parking. The volunteer program, with a one-year budget of $40,000, allows all 450 downtown city employees to register and receive a $50 a month incentive for leaving their car at home. Employees are offered a free Capital Metro transit pass, guaranteed rides home in emergencies, and personalized commute assistance. Downtown city employees currently are able to park for free at the Austin City Hall garage, which is leased by the city at a cost of $150,000 annually, or $100 per space per month (Coppola, 2012). The program goal is to encourage 100 employees who drove to work alone to commute to work differently, minimize downtown traffic congestion, promote transit alternatives for city workers, and increase visitor parking. The city will monitor employee compliance by requiring employees who drive and park to sign-in.

## 5.5 CAR SHARING

Car sharing is growing quickly in the United States. Users sign up for a membership and are able to rent cars for short time periods with gas and insurance included in the cost. Cars are stored in numerous locations throughout cities, and various methods are used to allow members to gain access to and start the vehicles. Car sharing differs from typical rental car services in that vehicles can be rented for a short period, as little as 30 minutes; vehicles are not stored at a central location; rental fees typically include gasoline and insurance; and users are typically required to purchase a membership. Zipcar, Hertz, and Enterprise operate car sharing nationally, while numerous smaller agencies or non-profits provide service to limited geographic areas.

Photo credit: City of Hoboken, NJ

It is estimated that one car-share vehicle can remove four to five vehicles from the road (Millard-Ball et al. 2005, 4-7). Unfortunately, finding locations where car-share vehicles can be stored between uses can be a challenge for both cities and car-share operators. Cars are typically stored in three types of locations:

(1) Within residential developments;

(2) In off-street commercial facilities; and

(3) On street.

Depending on the types of facilities it owns, a city can control access to all three of these locations. Options that cities can take to assure that parking spaces are available to car-share vehicles for storage between users are discussed below.

Supplying parking within residential developments is a relatively straightforward process for cities. In areas where car sharing exists, developers may seek out car-share agencies when constructing new residential buildings. The presence of a car-share vehicle can provide a marketing advantage, and contracting for car share earns a builder three points toward a Leadership in Energy and Environmental Design (LEED) designation. Unfortunately, not all cities have updated their zoning codes to allow car-share vehicles to be parked in residential buildings' parking areas. Making this change is a first step for any city seeking to encourage car sharing. Some cities have gone a step further and require developers to allocate parking spaces for car-share vehicles, but developers are typically not required to make the spaces available for free. Larger car-share agencies can provide sample ordinance language to cities seeking to update their zoning code.

When it comes to purely commercial parking facility operators and owners, cities have taken few actions to encourage the allocation of parking spaces for car-share vehicles. Zoning codes generally do not need to be changed to allow this, and the private market has shown itself to be capable of meeting demand. Car-share operators typically seek to park a large number of vehicles in a city and can therefore seek rate discounts by working with a particular parking operator.

The allocation of on-street parking is where cities have significant control. Two primary models have been developed by cities to allocate on-street parking to car-share agencies. The most used model is to designate on-street spaces for car-share vehicles and allow car-share operators to apply for those spaces. Portland, Oregon, works with the local car-share agencies to identify areas with demand for car sharing and available on-street space. Signs are installed to designate on-street spots, which are then allocated to the various operators at no cost. Pittsburgh, Pennsylvania, uses a similar model, but rather than providing the spaces at no cost, it charges a minimal fee.

The second model is to designate on-street spaces and auction them off to the highest bidder. In communities where multiple vendors compete, it can be difficult to decide who gets which spots, which this model can help address. Washington, DC makes operators bid for available parking spaces. Unfortunately, a successful auction process requires the presence of multiple bidders. If a car-share operator knows that a competitor will not want a space, it can provide a low bid to the city and secure the space at a very small cost. Thus, if this model is implemented to maximize a city's revenue, it may not accomplish that goal.

Regardless of the model chosen, cities that allow car-share vehicles to be placed on blocks where street sweeping is in place can require car-share operators to clean the street below and around the vehicle. This addresses the likelihood that a car-share vehicle will not be moved when street cleaning occurs.

Another consideration is that the allocation of on-street spaces in neighborhoods where parking demand is high may generate a negative community response. Hoboken, New Jersey implemented a Corner Cars program in which spaces on key corners throughout the city were designated for car-share vehicles only. The city suffers from a general shortage of on-street parking and public reaction to the set aside of spaces was negative. It is likely that other communities would experience similar concerns if they allocate on-street parking to car-share vehicles in high-demand areas. It may be possible to mitigate that concern by educating the public regarding the potential of car sharing to reduce parking demand.

Overall, the model for allocating car-share spaces is well developed within the private market. Cities need to do little in this area other than make sure it is legal for developers to allocate parking spaces for car-share vehicles. Allocation of on-street spaces is more difficult in areas where multiple car-share operators compete. Cities experiencing such competition and wishing to allocate on-street parking to promote car sharing need to identify an effective process through which spaces can be allocated among competitors.

# Public Acceptance 6.0

Innovative parking pricing policies that do not gain political or public support either will not be enacted or will be quickly repealed. Taking the time to develop and implement an effective communication strategy, outreach plan, and, potentially, marketing plan, will go far toward advancing program goals and reducing the stress placed upon parking managers and planners. Inadequate outreach efforts may lead elected officials and parking managers to be blindsided by public opposition and leave them unable to respond adequately to complaints raised by vocal critics.

This section of the primer discusses the steps involved in the creation and implementation of an effective outreach plan. Depending on the type of pricing program being implemented, it may not be necessary to implement all of the steps discussed, but it is best to err on the side of extra community input and outreach to identify and address community concerns and develop a network of strong supporters. The sidebar on Ventura, California, discusses how unanticipated public concern can quickly force a city to repeal portions of a newly implemented, well thought-out parking policy. Conversely, SF*park*, whose outreach policy is discussed briefly, offers an example of a program that significantly changed parking policy and pricing without generating negative public reaction.

## 6.1 DEVELOPING A STRATEGY

The first question to ask when developing an outreach strategy is, "What problem is your parking policy trying to address?" Hopefully, this answer was developed with community input during the planning process. The answer to this question will help planners identify stakeholders and guide messaging decisions.

The target audience, or stakeholders, will likely consist of elected officials, commuters, residents, merchant groups, visitors, and neighborhood groups. Special attention may be needed to reach some stakeholders, such as older and disabled residents or those who do not speak English. From within the target audience it is necessary to determine who the decisionmakers and influencers are: decisionmakers are typically elected officials whose votes are needed to start or fund a program, and influencers are heads of merchant and homeowners' organizations, business leaders, advocates, and other individuals who can influence political decisions and public opinion. Influencers should be among the first people contacted. After the target audience has been identified it may be beneficial to track all communications with this audience. It is advisable to use a database to store information on contact names, areas of interest, and the communications that occur. In addition, a mailing service should be used that allows people to subscribe and unsubscribe to notifications and information. The database and mailing service should, ideally, be integrated and maintained throughout the outreach effort.

Attitudes and perceptions on the part of the target audience toward the parking project or policy should be assessed. This can be done with surveys, one-on-one interviews conducted in person and over the phone, door-to-door outreach, informal focus groups, small meetings with invitees, and attendance at merchant and neighborhood meetings. Stakeholder concerns and desired outcomes should be identified during this initial process, which is meant to develop trust with stakeholders and to gather information that can be used to develop a marketing message and tone. If the outreach process succeeds at building trust and leads to a constructive relationship with staff, stakeholders could subsequently be called upon to help address unanticipated concerns or objections that may arise during or after implementation of a new policy.

## 6.2 CREATING A MESSAGE

Effective messaging is important to public acceptance. Some time should be spent strategizing messaging prior to working with stakeholders, whose input can then be used to test and refine ideas. Simple, consistent messaging needs to be developed that resonates with the community. SF*park* defined its message with the following points:

1. SF*park* makes parking more convenient.
2. Reducing circling and double-parking benefits everyone.
3. SF*park* uses demand-responsive pricing to open up parking spaces on each block and ensure available spaces in city-owned garages.
4. SF*park* charges the lowest possible rate to achieve the right level of parking availability.
5. The SFMTA's primary goal with the project is not to raise parking revenue but to make the transportation system work better for everyone.


Photo credit: SF*park*

SF*park* marketing materials and community outreach stuck very closely to the above messages. Other messaging examples include:

- Reinvesting revenue in the community;
- Making sure space is available for customers;
- Making parking easier;
- Providing more time so that visitors can stay longer;
- Reducing accidents;
- Improving walkability;
- Helping transit become faster and more reliable; and
- Improving economic competitiveness and vitality.

In addition to defining a message, it is also necessary to decide on a tone for marketing materials. The tone of marketing efforts should be appropriate to the community, audience, and project.

## 6.3 MARKETING

Once a message and tone have been established, it is time to develop marketing materials. The types of materials developed will vary based on budget, target markets, chosen distribution channels, and level of change being sought. Minor programmatic or policy changes are unlikely to require a large marketing effort; however, programs such as SF*park*, in which a new concept in on-street parking is introduced in combination with new parking assets and enforcement regimes, require significant education and outreach.

A number of options exist for distributing marketing materials and disseminating messages. Low-cost but effective options include bus-shelter signs; municipal bill inserts; bus wraps; Web sites; emails; radio; flyers left with merchants; door-to-door outreach; press releases; press events; and social media including Facebook, Twitter, and YouTube. In some communities it may be necessary to develop marketing materials in multiple languages. This determination can be made based on city policy, analysis of census demographic data for the impacted area, and feedback received during the outreach stage. For significant changes the visual design of marketing materials will ideally extend to physical parking assets, garages, and off-street parking lots.

Supporters and influencers should be called upon during the marketing phase of the project to discuss actively the benefits of the proposed parking policy with community stakeholders and political leaders. Many individuals within the community may not take the time to understand the details of the proposed parking program. Instead, they will seek the opinions of other community members or try to determine the general level of support within the community. If a vocal minority is able to create the appearance of opposition, the opinions of less informed community members may also turn against the project. Supporters and influencers can help a project avoid this fate.

## 6.4 TRACKING

Marketing efforts should be monitored and tracked. Specific goals should be identified against which the success of marketing efforts should be measured. Examples may include the number of Web site visits, Twitter postings, "likes" to a Facebook page, newspaper articles published, and community meetings attended. Monitoring progress toward marketing goals facilitates making adjustments to correct an underperforming marketing plan.

After a program has been approved and implemented, communication with community stakeholders should be maintained. This will ensure that parking managers are able to address any concerns that may arise and maintain community connections and trust for the next time a policy change is pursued.

## Ventura, California

Ventura, California, offers an example of the negative response that can occur to a parking policy change and how a city can successfully respond. In 2006, the city published the Downtown Ventura Mobility and Parking Plan, which verified that there was a downtown parking problem: peak parking occupancy exceeded 93 percent on Saturdays and occupancy was greater than 85 percent during 8 of 11 monitored hours. The plan recommended pricing strategies, time restrictions, parking benefit districts, and a series of transportation demand strategies.

Throughout the planning and implementation process, the city conducted a series of community outreach events, held merchant meetings, distributed print advertising, and conducted door-to-door outreach to discuss and inform residents and merchants about the benefits of parking strategies, including pricing, and the challenges facing the community that such strategies are designed to help overcome. They also asked merchants to speak with customers.

The implementation of pay stations was delayed from 2007 to 2011 to ensure the community was on board. To further garner public acceptance the city assured citizens that every dollar of parking revenue would go back to the downtown. The city also made the wireless Internet signal used to support the parking meters available at no cost to downtown computer users. City-owned or leased parking lots remained free, and additional signage was added to direct downtown visitors to these free parking locations.

Of the 2,915 public parking spaces in downtown Ventura, the city implemented pay stations for 342. The first strategy was tiered rates: $1.00 per hour for the first two hours and $1.50 per hour after the first two hours.

In October 2010 the system was reviewed and showed parking utilization dropping to 85 percent on Main Street during the midday and evenings. Unfortunately, businesses that were struggling due to the economy began to blame the parking meters for bad business and some customers found the tiered rates confusing. Local newspaper articles and blogs stated a dozen downtown business owners faced double-digit sales declines since the meters were initiated. At a merchant meeting, hosted by the mayor, businesses complained that the meters changed the welcoming nature of downtown and said that customers did not like the meters and struggled to use them.

Responding to these concerns, pricing was simplified with the removal of tiered pricing, a 4-hour limit in one parking lot was removed to allow employees more parking options, using loading zones was made free, and evening parking continued to be free. To further encourage public acceptance the city handed out 50,000 1-hour free coupons during the holidays, 14,000 of which were used.

While some vocal opposition remained to the parking policy changes, recent municipal elections favored candidates that supported the meters and most merchants report that they appreciate the new parking turnover, allowing easier curbside parking for customers on Main Street. The city continues to use the data from the meters to make determinations for future pricing adjustments and will use this data to provide information to the merchants and the community about the results of parking pricing downtown.

# Case Studies 7.0

## ASPEN, COLORADO

The City of Aspen is a well-known resort community in Colorado and offers an informative example of a town that has implemented paid, escalating parking charges; integrated numerous payment technologies; funded commuter programs with parking revenue; and priced parking in RPP zones. The town's population is relatively small, but its scenic location, access to multiple ski resorts, and high-end shopping and dining make it a major tourist destination. Faced with a significant number of vehicle trips, limited roadway and parking capacity, and a desire to reduce the environmental impacts associated with vehicle travel, the city turned to numerous parking management strategies to reduce vehicle trips.

Aspen implemented paid parking in its downtown in 1995 to increase parking availability. City planners recommended an hourly rate of $1.00, time limits of 2 hours, and residential parking permits to protect adjacent neighborhoods. It was further recommended that the parking changes be implemented concurrently with a doubling of bus service, expansion of high occupancy vehicle lane miles, and the establishment of convenient, mid-block pay stations and in-car meters. This plan generated a significant amount of negative public reaction. In response, the city council, while approving the plan, agreed to put it to a vote via a binding public referendum, but only after paid parking and the plan's other elements had been in place for 3 months. When the vote occurred, 75 percent of voters supported continuation of the program.

The manner in which Aspen handles its RPP zones is unique. The zones were created to prevent overflow parking from the city's downtown core. Residents are provided with parking permits and visitors are allowed to park for free for up to 2 hours in an 8-hour period. Those two policies alone would result in occupancy rates below 85 percent. To assure that its on-street parking facilities are appropriately utilized, the city allows visitors wishing to park for more than 2 hours to purchase $7.00 day passes at a local grocery store, through a pay-by-phone service, or at any of the 15 pay stations located within the neighborhoods. Businesses within the RPP neighborhoods are allowed to purchase business vehicle permits. Each permit can be used in any vehicle and costs $1,000 per year. Lodges within RPP neighborhoods are eligible to purchase parking permits for their guests' use. Employees at lodges were using the permits for personal parking, however, forcing the city to implement a "two strikes" policy in which any lodge whose employees are caught twice abusing the program are banned from participating; this dramatically increased compliance.

The city regularly monitors parking availability in residential neighborhoods. If average occupancy in the neighborhoods exceeds 85 percent over a 1-year period, rates are increased.

As the downtown parking policy matured, it became apparent that many visitors wanted to park for more than 2 hours. This demand was met through the implementation of a progressive rate structure that extended parking limits to 4 hours. The cost of the first 2 hours remained unchanged and drivers were allowed to purchase an additional 2 hours of parking for a premium charge. By keeping the cost of the first 2 hours of parking unchanged the city was able to avoid significant negative response from the community. While some individuals expressed concern regarding the higher rates for the third and fourth hours, the ability of the program to offer drivers more options

helped garner public support. Today, the cost of parking is $2.00 per hour for the first two hours, $3.00 for the third hour, and $4.00 for the fourth hour, with the average parking duration being 2.1 hours. Parking fees can be paid at pay stations or via pay-by-phone.

Aspen has used and integrated multiple parking payment and enforcement assets. In its early days the RPP program relied on chalking tires, and the city's staff of five enforcement officers was able to visit each parking space only two times per week. This system was time consuming and abused by people who would move their cars short distances to avoid time limits. The city responded to these issues by implementing license plate recognition technology. With LPR the city is able to check each of its 3,000 residential-zone parking spaces two to three times per day, even after reducing its enforcement staff by one. Aspen's LPR technology uses GPS and camera data to verify violations, which allows the city to identify cars that remain within a residential zone for more than 2 hours in an 8-hour period without either purchasing a day pass or holding an RPP. The enforcement vehicles access a database with information on all residential pass holders, which has made the need for physical passes unnecessary.

For a number of years within its downtown core, the city used in-car meters that were well received by residents; however, the city's vendor stopped supporting the technology, leaving the city scrambling for a new option. Not wanting to purchase another in-car meter system, the city decided to implement pay-by-phone. The pay-by-phone technology has allowed the city to implement parking promotions that allow people to park at reduced rates during different times of the year. The leftover in-car meters were used to support the city's commercial parking program. Companies with workers that must transport goods, such as plumbers and electricians, are eligible for in-car meters that allow them to park in the downtown area for $1.00 for the first hour and $0.50 for every subsequent hour. The in-car meters will soon be replaced by the pay-by-phone technology for commercial vehicles.

## WASHINGTON, DISTRICT OF COLUMBIA


Photo credit: FHWA

Washington, DC is a parking innovator, and its leaders have shown a willingness to experiment with new ideas and programs. Partnerships between city leaders, the District Department of Transportation (DDOT), and the Metropolitan Washington Council of Governments have resulted in the implementation of multiple innovative parking strategies. This case study focuses on DC innovations and lessons learned in variable parking pricing, residential parking permits, license plate recognition technology, and paid disabled parking.

### *Performance Parking*

The District of Columbia implemented a variable parking pricing program in 2008 in response to its Performance Parking Ordinance. The goal of the program is to stimulate on-street parking turnover and reduce occupancy rates to 85 percent in targeted neighborhoods. Two zones were identified as test areas for the program: the Ballpark District and Columbia Heights. Significant amounts of data were collected to help city officials set parking rates and policies. Data collection included a parking inventory and parking count for each zone and the creation of a database to track all collected data.

Within each neighborhood, every parking space was identified, labeled, and inventoried. LPR technology was used to conduct parking counts and estimate parking duration and turnover. Data from the inventory and count were analyzed to determine the zone-wide

hourly parking profile, which detailed the parking occupancy rate per peak hour, the average duration of stay, and the extent of vehicles parking beyond legal time limits for each block. This information established the parameters of Washington, DC's initial variable parking pricing rates for its system, which uses pay stations that are able to vary rates from block to block, by time of day and day of week and for special events. (Nevers & Gray, 2009).

The Ballpark District, which is one of the pilot neighborhoods affected by the city's Performance Parking Ordinance, is home to a recently constructed baseball stadium and experiences extreme increases in parking demand during games, which makes it an ideal area to implement a variable parking pricing program. The parking profile, not surprisingly, indicated a variation in occupancy rates between game and non-game days. Initial variable rates resulted in game-day occupancy of 34 percent for blocks that had previously been at or above 85 percent occupancy. The occupancy on non-game days was reduced to 24 percent (District Department of Transportation, 2010). Occupancy data indicated that initial rates were set too high. District parking managers, over time, have adjusted rates on specific blocks to achieve more appropriate occupancy levels by block and within the neighborhood. Adjustments included changing some metered rates on game days and implementing an escalating pay rate for meters on non-game days.

### *Residential Parking Permits*

Washington, DC has had an RPP system since the 1970s, which was introduced to ensure residents have access to street parking in their neighborhoods. With the implementation of the Performance Parking Ordinance some changes were made to the Ballpark neighborhood's RPP program. Prior to variable parking rates, visitors in the neighborhood could park for free for up to 2 hours and residents were sent one visitor-parking pass each year. Under the new program, visitors receive no free parking, and free visitor passes for residents are being abolished. In the future, visitors and residents will be able to purchase visitor passes online. Visitor license plate information will be provided when purchasing the passes and LPR technology will be used for enforcement.

Permit boundaries in the District are not determined by street block or neighborhood, but rather by the ward in which the resident lives. The entirety of Washington, DC is divided into eight wards, allowing residents to travel within their ward and use on-street parking for free. In addition, RPPs cost only $35 per year, a cost significantly below market rate and one that does not discourage residents from using on-street parking. Large zones with cheap residential parking leads to over saturation of cars in many neighborhoods, causing many complaints, but thus far no citywide policy solutions have been adopted.

### *License Plate Recognition Technology*

On the technology front, Washington, DC has begun widespread use of LPR technology to help determine parking occupancy rates and enforcement. LRP information can be referenced against a database containing violation, payment, and other pertinent enforcement information. Moreover, LPR technology is able to determine parking duration and occupancy data (Lum et al., 2010). More than 250 cameras, at a cost of $20,000 each, scan license plates in real time throughout the District, which is better than one LPR per square mile, the highest concentration in the nation. The technology was first introduced in the District in 2004 and is now able to collect more than a million data inputs a month. Driven by privacy concerns, the District has wrestled with the length of time LPR data information may be stored; currently the data collected is stored for 3 years (Klein and White, 2011).

### *Disabled Parking*

Washington, DC is attending to disabled parking in a new way, addressing access for disabled drivers and fraudulent all-day abuse of disabled placards. Desiring better compliance with the ADA standards, in 2012 the District implemented, a metered on-street parking program that, with time, will replace free parking at any street meter for disabled drivers. The program is designating two disabled metered spaces for each block in high volume areas. The goal of the program is to determine if paid disabled metered parking provides better access, encourages turnover of disabled parking spaces, and eliminates or reduces all-day fraudulent placard abuse by individuals who do not have a disability but use disabled placards to park.

Disabled meters are designed with a red dome to distinguish them from regular meters. At these meters, disabled persons displaying registered placards pay regular parking rates, but are allowed to park for longer time periods (District Department of Transportation, 2012). Shortly after implementation, the program was suspended for 90 days to address concerns raised by the disabled community and increase awareness of the program rules.

## SEATTLE, WASHINGTON

The City of Seattle adopted a performance-based parking program with variable rates for its many neighborhood business districts with paid on-street parking. The process began in late 2010 when the Seattle City Council adopted a new policy that focused on measurement and technical criteria for setting parking rates. The ordinance directed the Seattle Department of Transportation (SDOT) to collect on-street parking conditions data annually and determine whether changes should be made to parking rates and hours of operation to maintain specified availability targets.

The adopted ordinance sets rates between a minimum of $1.00 per hour and a maximum of $4.00 per hour. The SDOT director has the authority to set rates within these amounts by location, time of day, and other considerations. According to Seattle Municipal Code (11.16.121) rates are set based on technical analysis to maintain one or two open spaces on each block face throughout the day in order to:

1. Maintain adequate turnover of on-street parking spaces and reduce incidents of meter feeding in commercial districts;
2. Encourage an adequate amount of on-street parking availability for a variety of parking users, efficient use of off-street parking facilities, and enhanced use of transit and other transportation alternatives; and
3. Reduce congestion in travel lanes caused by drivers seeking on-street parking.

Since late 2010, the city has conducted four comprehensive parking studies using either consultant resources or internal staff. The studies have documented on-street parking conditions manually, including occupancy by hour, duration, and presence of exempt vehicles (namely, disabled parking permits). When the program started, SDOT used the collected data to look at parking availability during the peak hour, and set prices accordingly. Various stakeholders felt that the city was setting prices based on data from too short a time period. In response, SDOT staff began to instead set prices based on data from the peak 3-hour period between 9:00 a.m. and 3:00 p.m.

In 2011, SDOT made considerable changes to rates and hours of operation based on the results of a 2010 parking study and is making additional changes in 2012 based on results of a June 2011 study. The changes have varied depending on neighborhood conditions and include rate increases, rate decreases, maximum time limit increases, and evening hour extensions. In addition, "sub-areas" have been created with different rates or time limits. This recurring analysis and adjustment process has resulted in the creation of 23 parking districts, some of which have two sub-areas with different rates and maximum time limits. Prior to passage of the performance-based parking ordinance, Seattle had three pricing zones: downtown, center city, and outer areas.

Results from the 2011 rate adjustments found that in four districts where rates were increased, occupancy subsequently dropped. In seven districts where rates remained the same, occupancy sometimes went up and sometimes went down. In the eleven districts where rates were decreased, there was no significant change in occupancy. The city found that in areas where parking occupancy has traditionally been low, rate reductions did not attract new parkers. The city is now testing to see if increasing parking time limits from 2 to 4 hours in low-demand areas increases occupancy. Data from SDOT's most recent price and time limit adjustments will be available in the fall of 2012.


Photo credit: City of Seattle

Since implementing performance-based parking, the city has worked to identify more efficient ways in which to collect on-street parking condition data. While the city is not currently pursuing street-sensor technology, SDOT has investigated several other ways to collect occupancy data. In one effort, SDOT is examining payment transaction data to estimate occupancy. Unfortunately, in several areas, paid occupancy is lower than actual occupancy and the difference varies by time of day and area. The primary reason for the difference is disabled permit parking; vehicles with State-issued disabled parking permits are allowed to park for free and for an unlimited period in paid parking neighborhoods.

A second data collection effort involved the use of Seattle Police Department resources. Parking enforcement officers were trained in the data collection process and used for two of the four completed studies; however, it was determined that the time they spent assisting with the parking study pulled them unreasonably from their primary enforcement task. In a third effort, SDOT tried to use its LPR enforcement equipment to determine occupancy levels, but was unsuccessful. The match between the locations of license plate reads and the paid-parking block faces was too imprecise for use in a parking study.

Throughout development and implementation of the performance-based parking process, SDOT has actively engaged community stakeholders. This has been accomplished through the creation of a Parking Sounding Board made up of a wide variety of community stakeholders who discuss and comment on changes in paid-parking rates and hours of operation. SDOT has also involved local neighborhood groups and chambers of commerce and is producing neighborhood-specific information for distribution. Going forward, SDOT is also working to identify new ways to communicate parking rate changes to the public.

# 8.0 Conclusion

Today, parking management and pricing appears to be on the cusp of significant, innovative, and accelerated change. Performance-based parking has proven to be successful, and cities are beginning to develop data-driven parking policies based on clear, attainable goals. San Francisco and Seattle offer examples of performance-based strategies that have earned both public and political support.

Advances in parking policy are being made possible, in part, by improvements in parking technology. New tools make it easier for cities to adjust pricing and collect utilization data. Steps are also being taken to develop database tools that integrate the information provided by parking assets from different manufacturers, which allows for the implementation of complex and user-driven parking systems. These improvements make it easier for cities to enforce parking regulations and for users to pay and comply with parking rules and fees.

Photo credit: City of Seattle

Governments are also responding to the market distortions created by free employer-provided parking. Cities are implementing both mandatory and voluntary policies to encourage employers and developers to pass the cost of parking on to travelers, who in turn are then more likely to make travel decisions that are more economically efficient. Cities are also working to address issues associated with preferred users, including the disabled, city employees, and residents. Without carefully addressing these issues it will be difficult for performance-based parking policies to function effectively.

Cities interested in implementing new parking-pricing programs will soon benefit from large amounts of data from the Seattle and San Francisco performance-based pricing programs. Seattle is closely tracking the effect of pricing on utilization and is also experimenting with expanding time limits and making changes to policies for preferred users. San Francisco is collecting a wide array of data including information on the effects of performance pricing on parking search time, double parking, parking availability, air quality, sales tax revenue, parking tax revenue, and overall user experience. Data on efforts to address preferred users will also be forthcoming from Washington, DC; New York City; Chicago; Austin; and others.

In the end, cities rarely suffer from an absolute shortage of parking. Rather, it is their management processes that are often insufficient to provide drivers with reliable parking access and information. Moving forward, cities need to think broadly when developing solutions to parking and access issues. Parking and land use are closely intertwined, and parking policy decisions affect the physical environment, livability, and economic success of a city. Parking decisions cannot be fully separated from the political process, and each city must develop a solution that is appropriate to its needs. This primer is a guide in that process. The FHWA encourages planners, politicians, and community members to seek out additional information from other FHWA documents and events, published materials, and the cities whose programs were discussed in this document.

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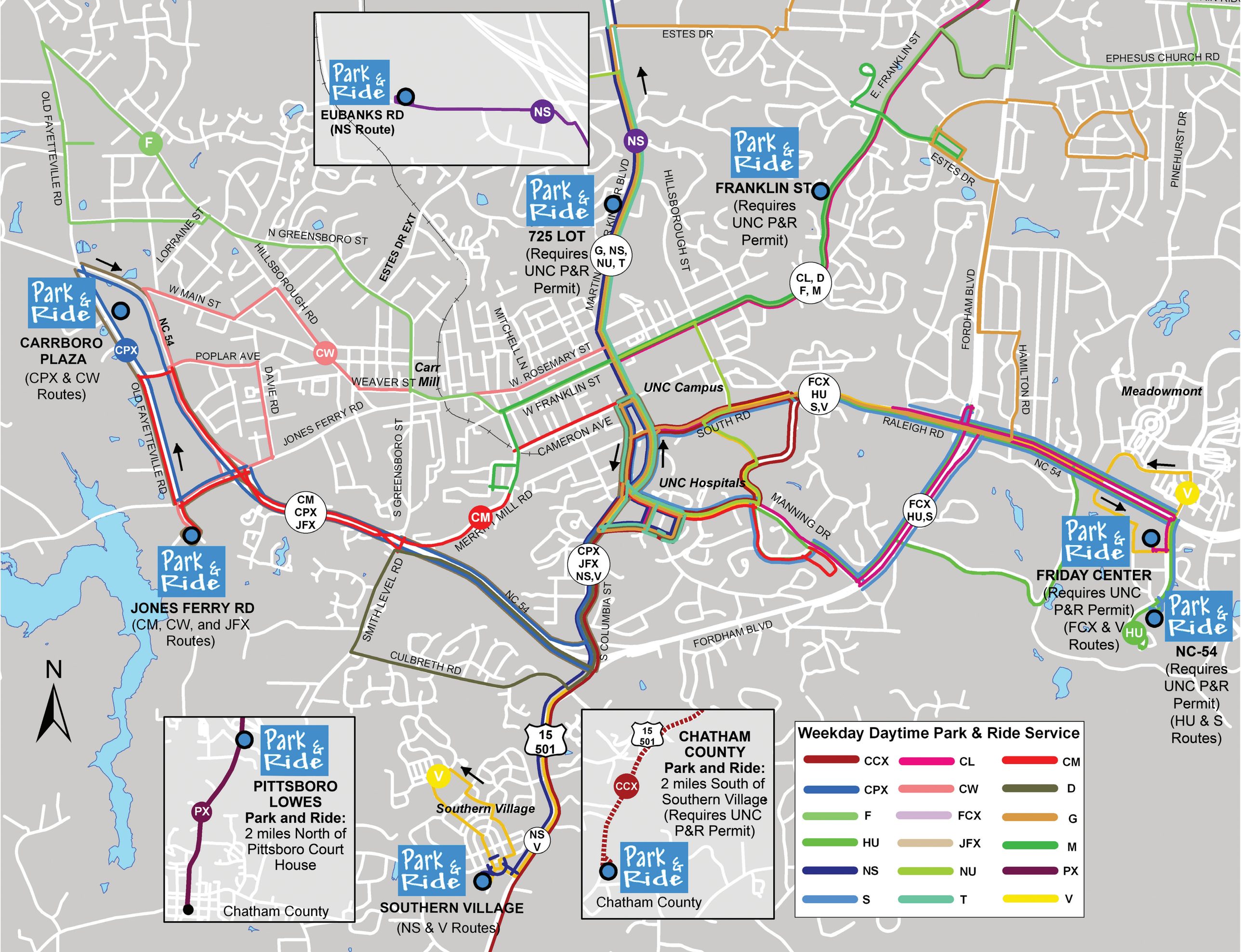
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