TOWN OF CASTLE ROCK COLORADO

Traffic Engineering & Operations Division

"Transporting the Community: Safely and Efficiently"

TO: Downtown Advisory Commission

THRU: Mark Stevens, Town Manager
Bob Goebel, P.E., Public Works Director

FROM: Dan Sailer, P.E., Traffic Engineering & Operations Manager

DATE: 30 May 2006

RE: Downtown On-Street Parking Configuration Options

EXECUTIVE SUMMARY

Purpose: To obtain feedback from the Commission regarding options for reconfiguring on-street parking spaces through pavement striping only.

Key Information: Several businesses in the downtown area have voiced concerns regarding the availability of on-street parking spaces as well as enforcement of the existing parking time restrictions. Traffic Engineering has reviewed the existing street widths in the downtown area and has put together some examples of how parking spaces could be reconfigured through pavement striping only (attachment #1). The existing configurations do not maximize the available street widths in many areas and there is a potential to gain close to 100 additional parking spaces just utilizing pavement striping.

With the potential to add this many new spaces there are several options that could be implemented: 1) Reconfigure the entire downtown area to gain the most number of on street spaces and eliminate parking time restrictions, 2) Same as number one with parking time restrictions in some locations, 3) Confine reconfiguration of spaces to a few blocks and keep existing time restrictions, and 4) Implement some non-traditional changes such as reversed angled parking and striped roundabouts. These are just a few options possible.

A consultant has recently completed an on-street handicap accessible parking study to identify handicap parking space needs (attachment #2). This study recommends that four additional on-street accessible spaces be provided along with candidate locations. At a minimum, some reconfiguration is recommended if these additional handicap spaces are added in order to ensure that there is no decrease to the number of non-handicap spaces.

Budget: There currently is not a 2006 established budget for reconfiguring the downtown parking spaces. It is estimated to cost approximately $15,000 if all spaces shown on the first attachment are implemented. If this option is chosen then these funds will need to be taken from an existing budget account(s).

Recommendation: It is recommended that some additional on-street parking spaces be added including the four handicap spaces listed in the attached report. Staff is proposing that experimentation on Wilcox and Perry Streets be minimized due to the higher vehicular volumes that currently exist.

Background: With the sharp increase in Town population over several years, the existing demand for parking within the downtown area has also increased. More business owners in the downtown area are voicing concern about the lack of available on-street parking near their businesses. Additionally, some have requested that more enforcement of the existing parking time restrictions occur to help deter long term parking violators.

Process: Traffic Engineering completed an assessment of the existing street widths in the downtown area. The first attachment shows some locations where reconfiguration of spaces could occur using pavement striping only to increase the number of on-street parking spaces. If all locations were reconfigured close to 100 additional spaces could be achieved.

On each street segment various configurations were looked at that would maximize the number of spaces that could be created. Ninety-degree head in parking allows for the most number of spaces to be created and this configuration was used where space allowed. This type of configuration creates the most encroachment into the drive lanes. This effectively narrows the allowable drive lanes and increases the density of parked cars. This type of configuration creates much more of a traditional parking lot type feel to the street. As such this configuration was limited to the streets where lower volumes and speeds exist.

There is also the ability to try some non-traditional treatments. In the first attachment along Third Street between Wilcox and Perry a reverse-angle parking concept is shown. In this concept vehicles back into the parking space. This provides several advantages: 1) Sight distance is improved for drivers when they are reentering traffic (un-parking) and, 2) Doors open toward traffic which creates a barrier for passengers. This reduces the chances of passengers such as small children to wander into the travel lanes. A potential drawback to this is that drivers may not know how to properly maneuver into these spaces and with a lack of physical barrier to prevent it, cars traveling in the opposite direction may head-in park. A striped roundabout is also shown at the intersection of Fourth St & Jerry St. This is an existing all-way stop controlled intersection that is extremely large. A roundabout would be a more efficient control that would also help reduce driver confusion. While reconfiguring parking spaces it may make sense to try this to get a feel for expanding this type of intersection control to other locations in the downtown area.

Due to the number of new spaces that could be created there are several approaches that could be taken:

Option #1 Implement all striping changes shown on the first attachment and eliminate parking time restrictions. Some pros to this option include: 1) Provides the most number of new parking spaces, and 2) Eliminates need to enforce time restrictions. Some cons include: 1) Big change to a large area for a test, and 2) Unknown what the effects of eliminating time restrictions will cause. Under this option two additional handicap spaces would need to be added in addition to the four recommended in the second attachment for a total of six new handicap spaces. This is based on the required 2% of the total spaces formula outlined in the attached report.

Option #2 Same as option one, but keep existing time restrictions. This has the same pros and cons as option #1 with the exception of the unknown effect of eliminating the time restrictions.

Option #3 Limit changes to a few select blocks and keep time restrictions in place. An example of this option is shown in the first attachment. Some pros to this option include: 1) Provides additional parking spaces, and 2) Reduces area for experimentation if changes are not well received. Some cons include: 1) Minimizes the number of spaces added, and 2) Still requires time restriction enforcement.

Option #4 Include some non-traditional configurations. Examples of these are also shown on the first attachment. Some pros to this option include: 1) Good test for how people would receive these for future wider implementation potential, and 2) Increased safety potential. Some cons include: 1) May not be well received, and 2) Potential for incorrect head-in parking maneuvers with reverse-angle parking due to lack of center physical barriers.

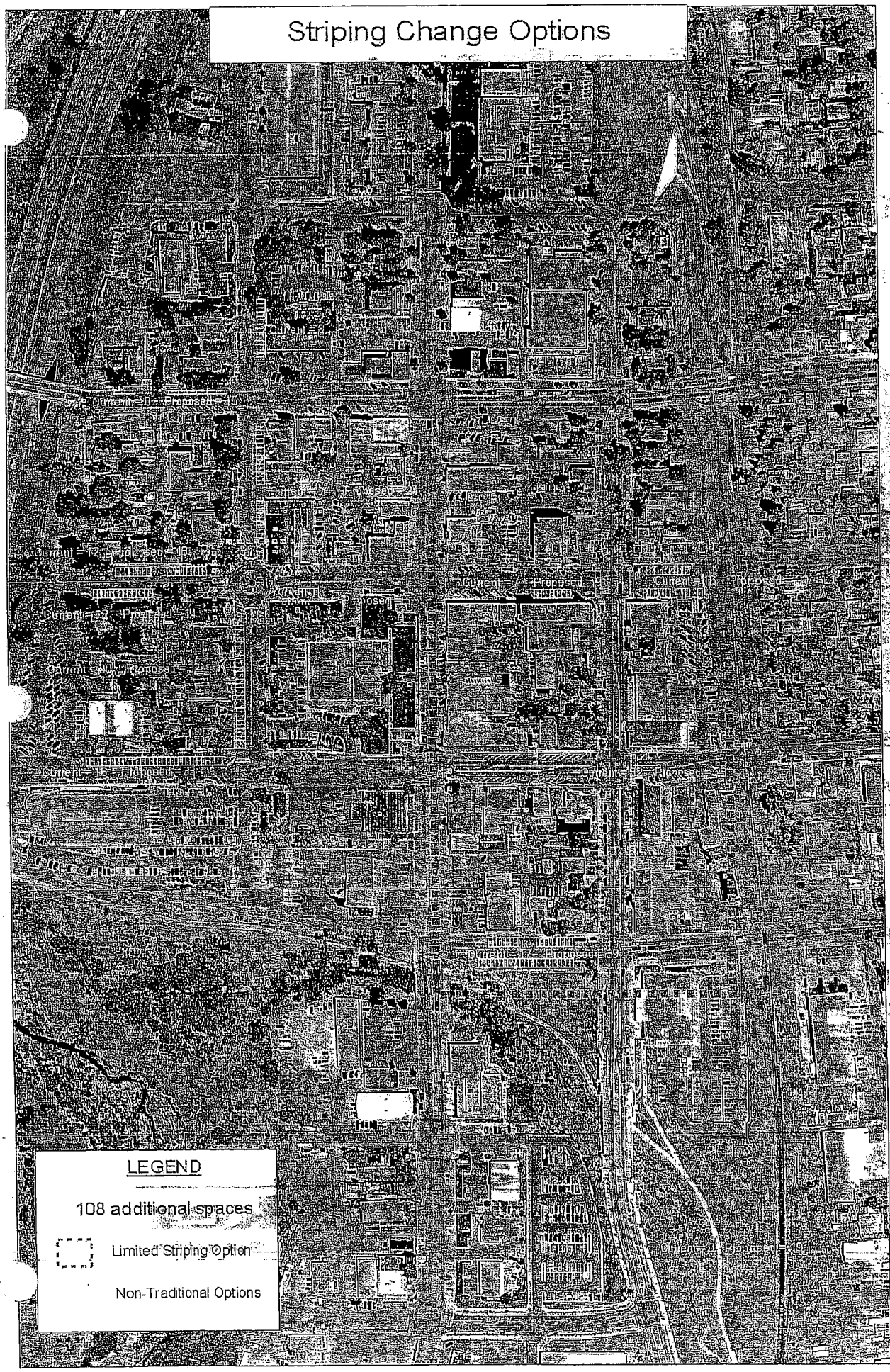
Budget Implications: Implementation of the first option would be the most costly. Because these are striping changes only, the cost would be relatively inexpensive. It's estimated to cost close to $15,000 to implement option #1. There is not a current 2006 budget account for these options. Money from existing 2006 accounts would need to be transferred. Based on current projections, staff believes that the most expensive option could be absorbed without any negative consequences to existing work plans.

Recommendation: Staff is recommending that some parking reconfiguration be implemented. At a minimum the four new handicap spaces recommended in the second attachment should be implemented and reconfiguration of parking spaces along one street occur in order to ensure no net reduction to non-handicap spaces. Staff is looking for general feedback from the Commission on how to proceed with any changes.

Attachment:

1. Striping Change Options
2. On-Street Accessible Parking Study

Striping Change Options



LEGEND

108 additional spaces

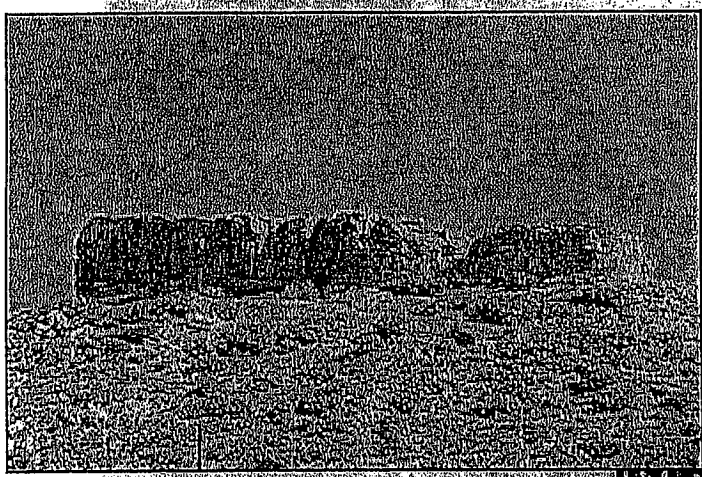
Limited Striping Option

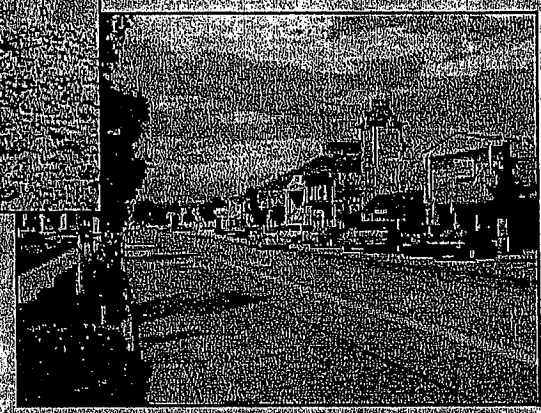
Non-Traditional Options

TOWN OF CASTLE ROCK Colorado

On-Street Accessible Parking Study

November 4, 2005





Presented To:

Town of Castle Rock, Colorado
Public Works

Prepared By:

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Carl Walker
Parking
Planning Engineering Restoration

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Introduction

The Town of Castle Rock has retained *Carl Walker, Inc.* (*Carl Walker*) to review and evaluate the on-street accessible parking in its downtown commercial district. Following is our scope of services for the project:

1. Identify the number of on-street spaces by block face within the twelve-block study area identified by Town officials.

2. Determine the number of accessible spaces, including van accessible spaces, required from the Americans with Disabilities Act (ADA) guideline table based on the on-street parking capacity within the study area.

3. Determine if there are any off-street locations within the study area suitable for accessible spaces in lieu of on-street spaces, provided equal or greater access is provided in terms of distance and convenience.

4. Recommend preferred locations for on-street accessible parking within the study area based on building locations, parking demand, the layout of parking (parallel, perpendicular or angled), existing curb ramps, crosswalks, etc.

5. Determine if sight distance will be improved at intersections if accessible parking is placed at corner locations with curb ramps.

6. Discuss preliminary findings with Town officials in a meeting. In addition, discuss the viability of complying to the maximum extent feasible with the recommendations for on-street accessible parking by the Public Rights-of-Way Access Advisory Committee (PROWAAC).

7. Develop conceptual parking plans showing the location and layout of the proposed on-street accessible parking within the study area.

On-Street Parking Supply

The twelve-block study area is indicated in Figure 1 on the following page. The blocks have been numbered for identification purposes. *Carl Walker* personnel counted the number of on-street parking spaces within the study area and the results are indicated by block face, block, and for the study area overall in Table 1 (page 3). There are currently an estimated

504 on-street parking spaces within the study area. The on-street parking consists of a combination of parallel, angled and perpendicular spaces. Of the 504 on-street spaces, seven are currently accessible. The seven accessible spaces are located on blockfaces 4W (1), 7W (2), 8W (2), 12S (2).

Figure 1.
Project Study Area

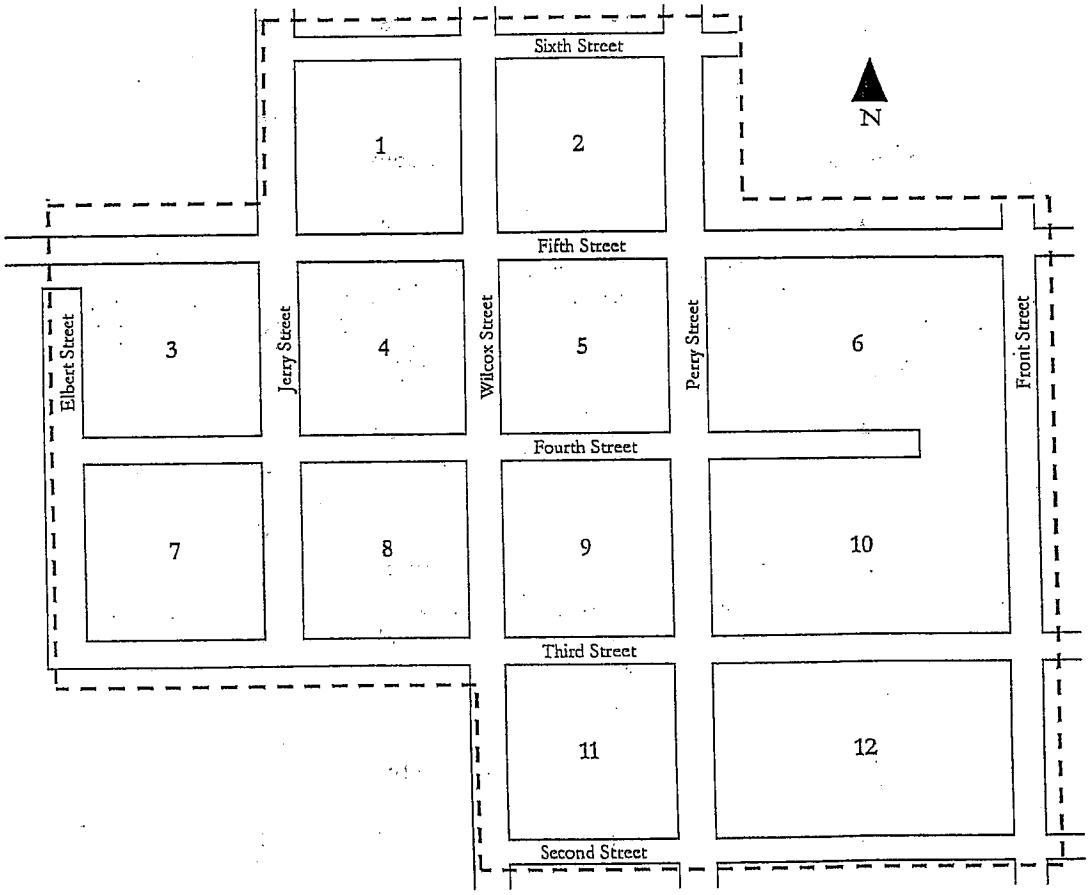


Table 1.
Downtown Commercial District On-Street Parking Supply

Block No.		Number of Spaces	Block No.		Number of Spaces
1	N	11	7	N	14
	S	7		S	34
	E	4		E	22
	W	16		W	16
Subtotal:		38	Subtotal:		86
2	N	18	8	N	6
	S	0		S	15
	E	18		E	0
	W	8		W	9
Subtotal:		44	Subtotal:		30
3	N	0	9	N	16
	S	10		S	16
	E	11		E	9
	W	11		W	25
Subtotal:		32	Subtotal:		66
4	N	9	10	N	5
	S	19		S	3
	E	9		E	7
	W	15		W	5
Subtotal:		52	Subtotal:		20
5	N	0	11	N	15
	S	11		S	17
	E	8		E	11
	W	11		W	14
Subtotal:		30	Subtotal:		57
6	N	0	12	N	5
	S	10		S	2
	E	8		E	4
	W	10		W	10
Subtotal:		28	Subtotal:		21
			TOTAL:		504

Accessible Parking Requirement

Where on-street public parking is provided in commercial districts, accessible parking spaces are to be provided in accordance with the following Americans with Disabilities Act (ADA) guideline table.

Required Number of Accessible Spaces

Total Number of Parking Spaces in Facility	Required Minimum Number of Accessible Spaces
1 to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151 to 200	6
201 to 300	7
301 to 400	8
401 to 500	9
501 to 1,000	2% of Total
1,001 and Over	20 plus 1 for each 100 over 1,000

Based on the on-street parking supply of 504 spaces, eleven (11) accessible spaces are required. ADA requires rounding up to the next whole number when calculating the required number of spaces based on a percentage or ratio (504 x .02 = 10.08 = 11). Since there are already seven on-street accessible spaces located within the study area, it is recommended to add four more in order to comply with ADA. Accessible spaces should be dispersed throughout the study area if feasible. It does not make sense to place accessible spaces at locations where there is currently little or no demand for parking. It is also not advisable to place on-street accessible spaces in close proximity to a high concentration of off-street accessible spaces.

Accessible Parking Design

1. Accessible spaces are 8'-0" wide with an adjacent 5'-0" or 8"-0" wide access aisle. One of every six accessible spaces must have the wider 8' wide access aisle and be designated as "Van Accessible."

2. An accessible space and access aisle cannot be placed at a location with a running or cross slope greater than 1:50 (2%).

3. Each accessible space must have a sign showing the international symbol of accessibility mounted at least five feet above the pavement. All van accessible spaces must have an additional "Van Accessible" sign mounted below the symbol of accessibility.

4. The international symbol of accessibility must be painted on the pavement within the accessible space.

5. Access aisles for van spaces must be on the passenger side when the parking is angled because vehicles cannot back into these spaces.

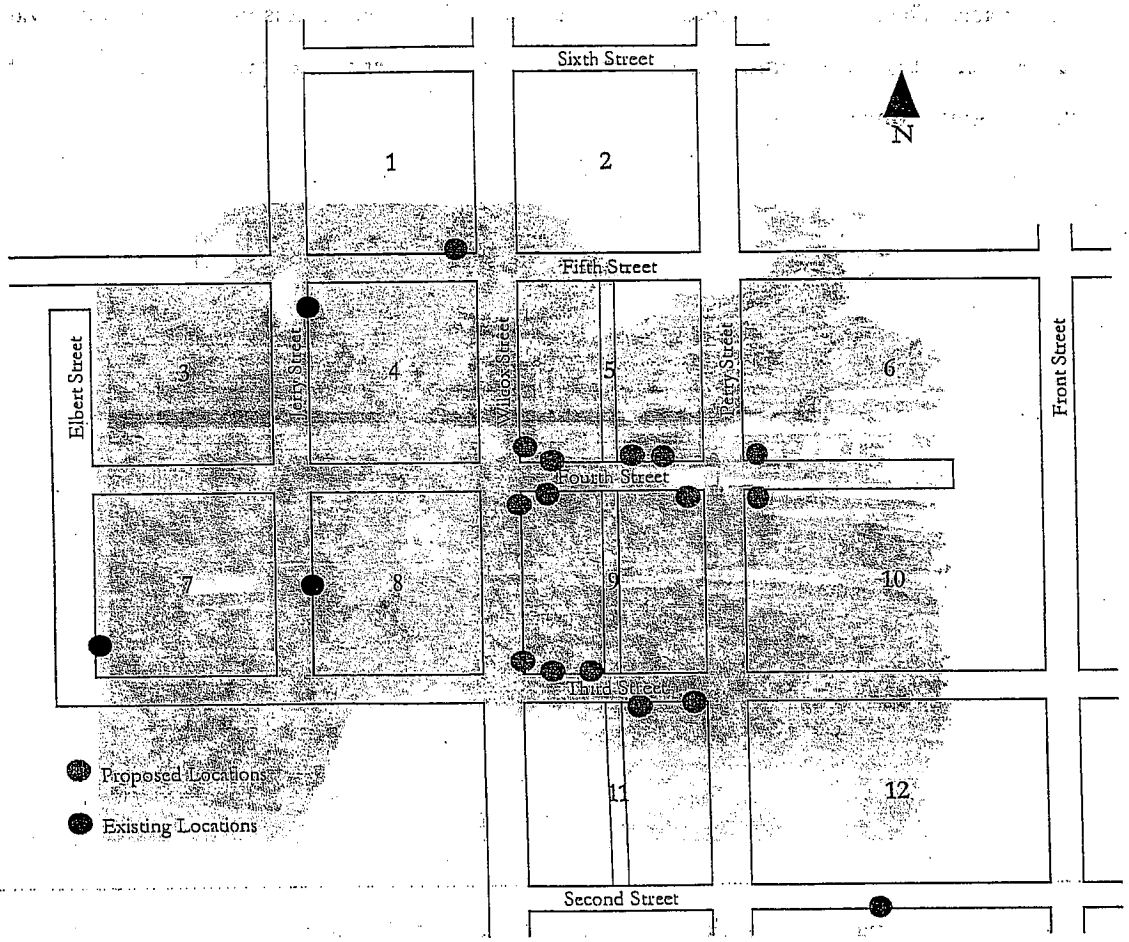
Because the angled and perpendicular spaces can be designed according to the accessible parking space provisions, specifically a space with an adjacent access aisle, only angled and perpendicular spaces are considered for additional accessible parking spaces. A 13'-0" wide curb lane would be needed to accommodate a parallel space and adjacent access aisle.

The Public Rights-of-Way Access Advisory Committee (PROWAC) recommends where angled parking is provided, to mark the space and access aisle uniformly to provide a choice of driver- or passenger-side access aisles. It is preferred and encouraged to have a curb ramp connecting the access aisle directly to a sidewalk. However, existing corner curb ramps can be used to provide access to a sidewalk, although this will require the use of a roadway as an accessible route. An accessible route can only pass behind other accessible spaces. It is permitted to cross a vehicle way with an accessible route.

Location of Existing and Proposed On-Street Accessible Spaces

Several locations have been identified within the downtown commercial district that are suitable for accessible on-street parking. These 15 locations on Blocks 1, 5, 6, 9, 10 and 11 are graphically illustrated in Figure 2 by the red dots. The black dots represent the location of existing on-street accessible spaces within the study area.

Figure 2.
Location of Existing and Proposed On-Street Accessible Parking

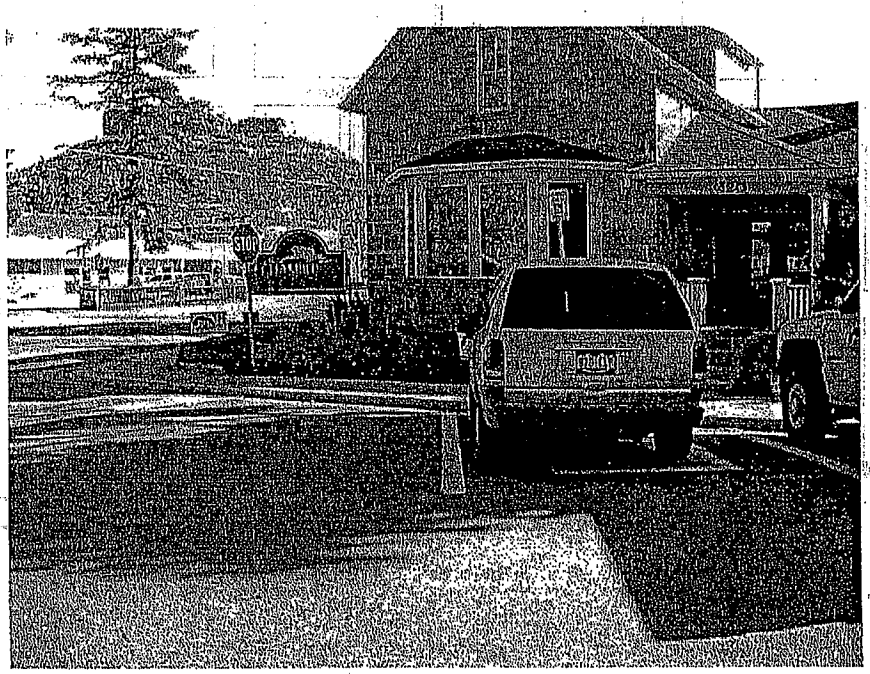


Carl Walker Parking Planning Engineering Restoration

Modifications to Existing Accessible Spaces

It is recommended to add van accessible signs to the two existing perpendicular accessible spaces on Jerry Street on Block 8 and to diagonally stripe the "No Parking" area between the two spaces. If these spaces are designated as van accessible, none of the new accessible spaces will need to be signed as van accessible.

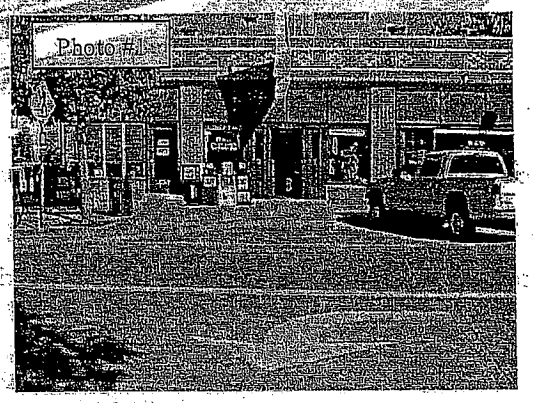
The accessible space on Jerry Street on Block 4, shown in the photograph below, does not have an adjacent access aisle. It is recommended to add a 5'-0" access aisle to the left side of the space. The access aisle can be on the left side of the space if it is not designated as van accessible. It is not recommended to move the space closer to the intersection because of line-of-sight concerns.



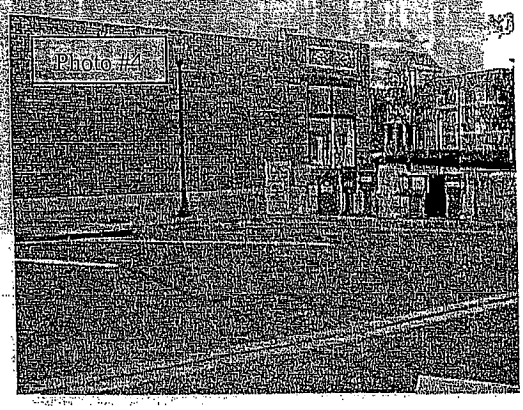
The accessible spaces on Blocks 7 and 12 do not need to be modified.

Proposed On-Street Accessible Spaces

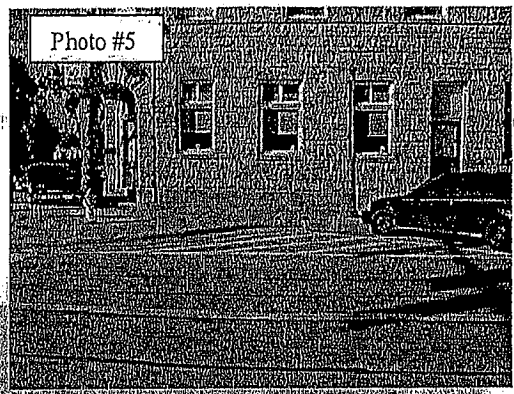
The Wilcox Street locations for accessible parking on Block 9 are shown in the Photographs 1 and 2. As previously mentioned, it is recommended to have a protected curb ramp connecting the access aisle to a sidewalk. We believe this is particularly important for accessible spaces on Wilcox Street due to the volume and speed of vehicular traffic. If the Town of Castle Rock chooses not to develop new curb ramps because of the expense or for other reasons, it is recommended to locate accessible spaces on Third Street and Fourth Street instead of Wilcox Street.

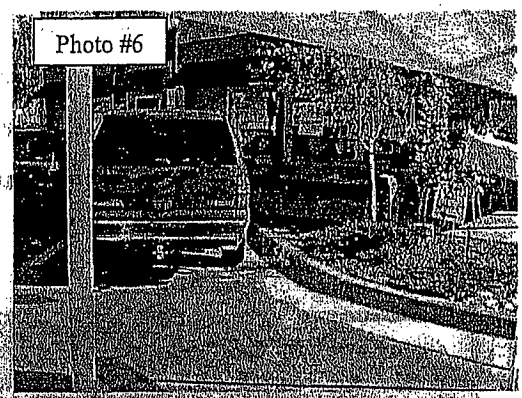


Photographs 3 and 4 show the Fourth Street locations on Blocks 5 (left) and 9 (right) that are possible alternatives to the Wilcox Street locations.

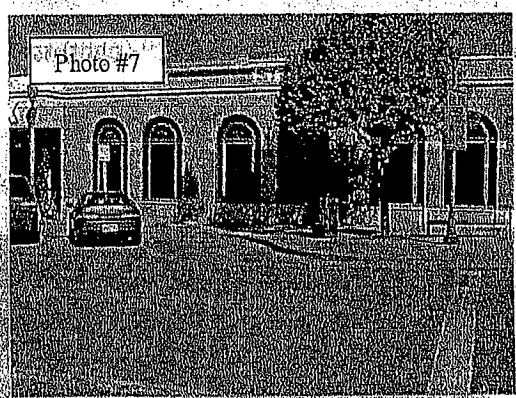


Photograph 5 shows the Third Street location that is a possible alternative to one of the Wilcox Street locations. Photograph 6 shows the proposed accessible parking location at the SE corner of Perry and Fourth Streets.

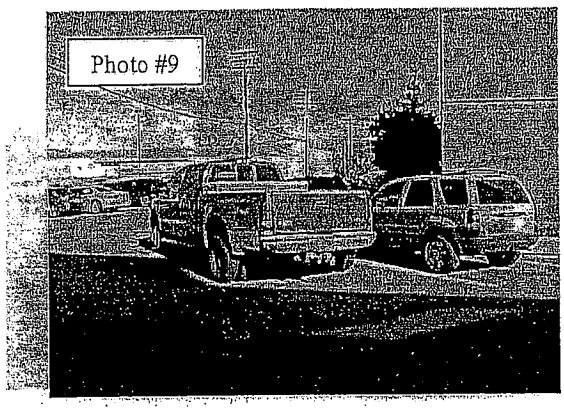




Photograph 7 shows the Wilcox Street location identified on Block 5. Photograph 8 shows an accessible ramp that is protected from Wilcox Street traffic. Unfortunately, the parking space near the ramp is a parallel space and there is insufficient width to provide a protected access aisle next to the parallel space.

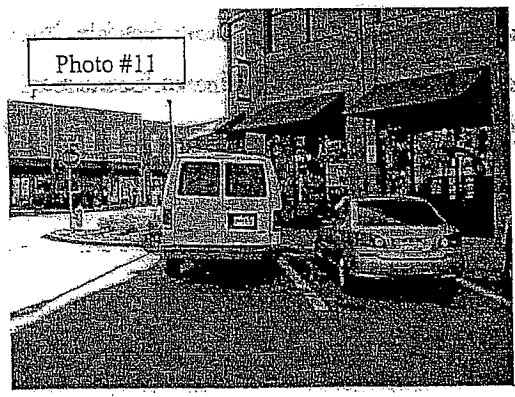


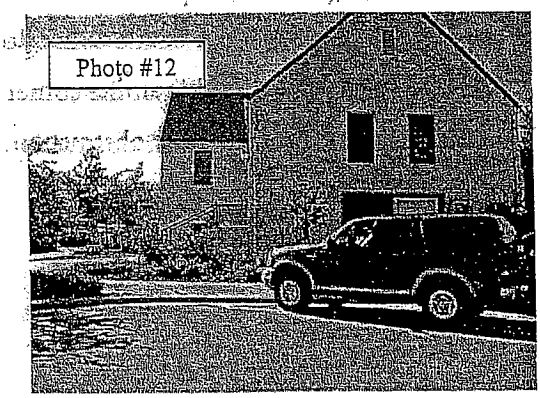
Photograph 9 shows the Fourth Street location next to the alley on Block 5. Photograph 10 shows the Third Street location next to the alley on Block 9.



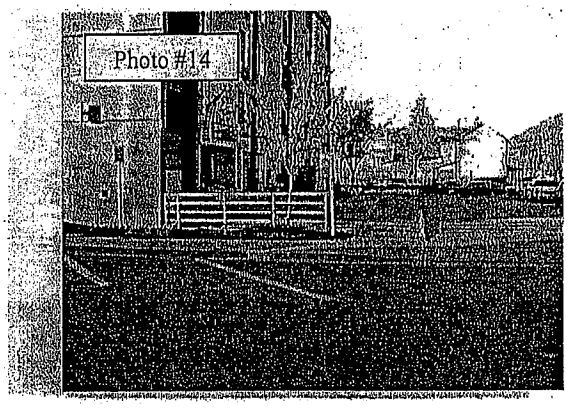
Photograph 11 shows the location at the SW corner of Perry and Fourth Streets.

Photograph 12 shows the location at the SW corner of Perry and Third Streets.





Photograph 13 shows the Third Street location next to the alley on Block 11. Photograph 14 shows the location east of the proposed alley space on Block 5.



Following in Figures 3 to 7 are conceptual parking plans showing the layout of the proposed on-street accessible parking within the study area. All of the accessible spaces are minimum 13'-0" wide (8'-0" wide space with an adjacent 5'-0" access aisle). Also shown on the plans are proposed curb ramps at the corner locations where they would be most feasible. New curb ramps are less feasible at the corner locations where they are not shown because of existing landscaping or other obstructions such as benches, trash cans, newspaper stands, and trees.

Figure 3.
Proposed Accessible Space at Fifth and Wilcox Streets

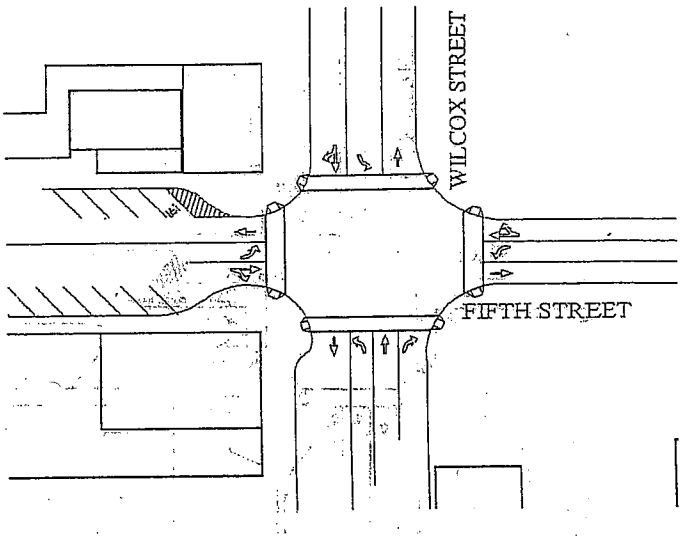


Figure 4.
Proposed Accessible Spaces at Fourth and Wilcox Streets

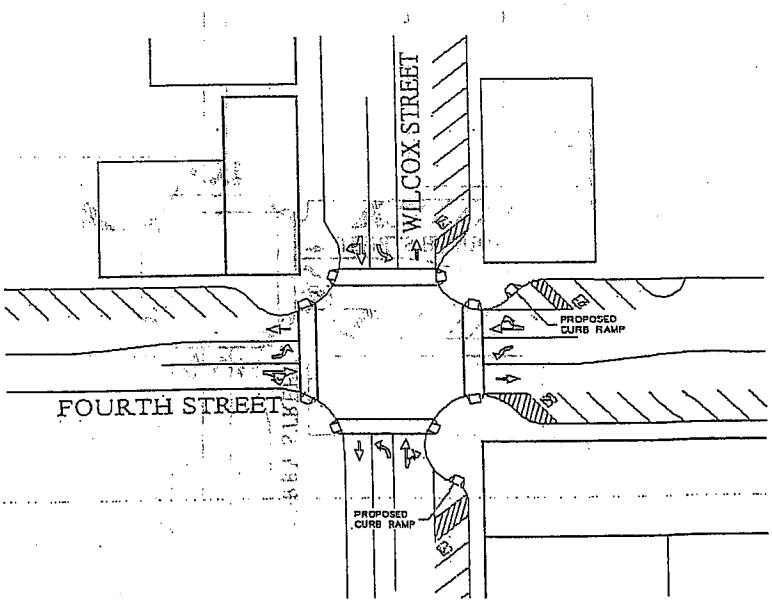


Figure 5.
Proposed Accessible Spaces at Third and Wilcox Streets

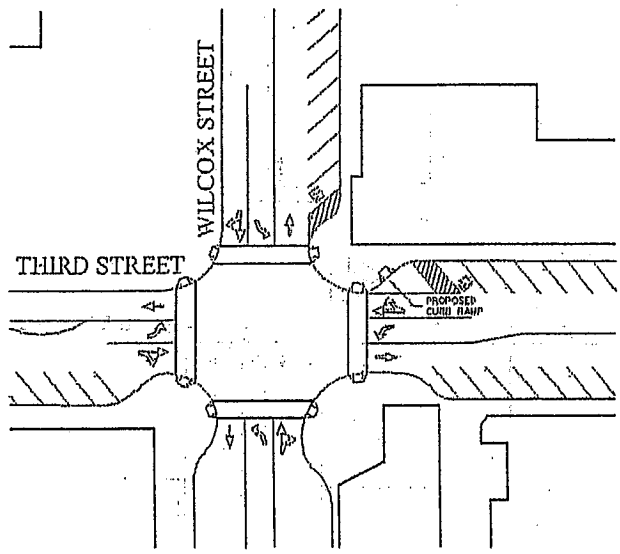


Figure 6.
Proposed Accessible Spaces at Fourth and Perry Streets and Fourth Street and the Alleyway

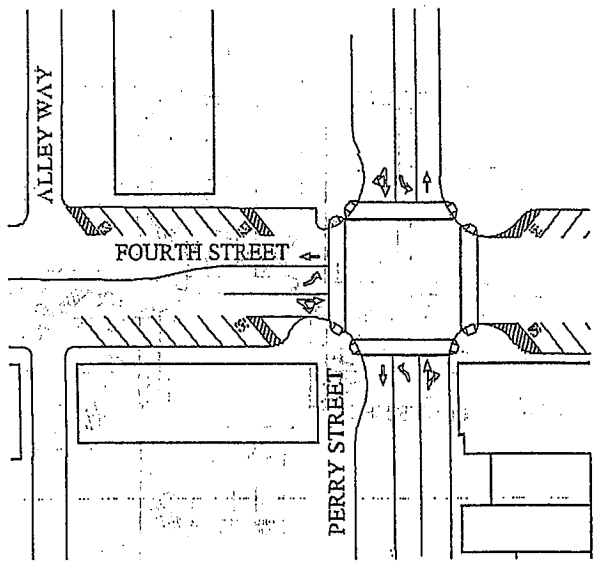
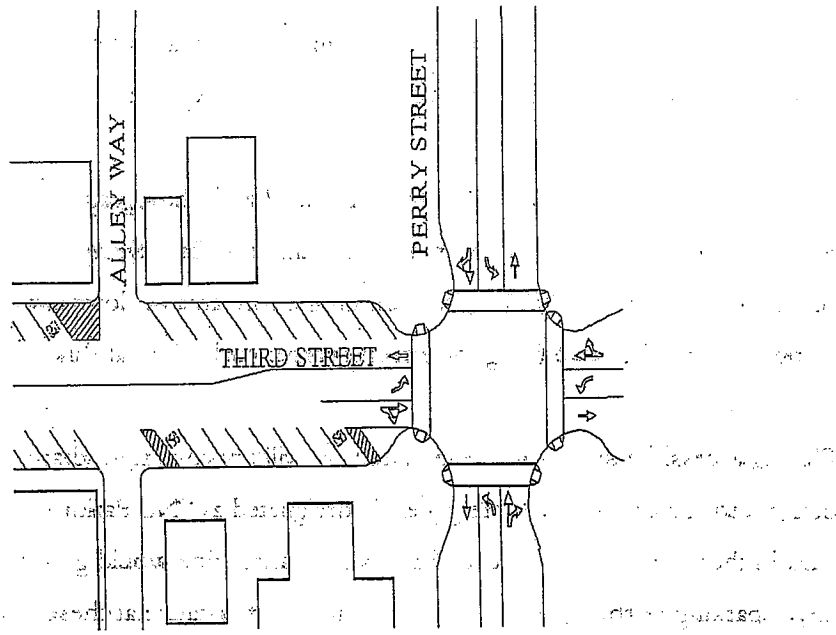


Figure 7.
Proposed Accessible Space at Third and Perry Streets and Third Street and the Alleyway



Preferred Locations for On-Street Accessible Spaces

All of the downtown locations identified for on-street accessible spaces are acceptable and should be given consideration. However, our preferred locations for accessible spaces are those that could most easily accommodate new curb ramps - two spaces at Fourth and Wilcox (Figure 4 and Photographs 1 and 3) and one space at Third and Wilcox (Figure 5 and Photograph 5). If the Town of Castle Rock does not provide new curb ramps, it would be preferable not to place accessible spaces on Wilcox Street.

We also favor the accessible spaces that could be added next to the alleys on Third and Fourth Streets (Figures 6 and 7 and Photographs 9, 10 and 13) because the existing alley curb cuts could be used to access the sidewalks. An existing curb cut could also be used to access the sidewalk by the senior apartment building on 4th Street (Figure 6 and Photograph 14). Despite this advantage, are these favorable locations for accessible spaces with respect to primary destinations downtown?

Accessible spaces on the SE and SW corners of Fourth and Perry Streets (Figure 6 and Photographs 6 and 11) would be located in a high demand area, but there is some concern about utilizing the existing corner curb ramps. Pedestrian safety would be enhanced by providing new curb ramps, but this would be at the expense of landscaped areas.

An accessible space at Third and Perry (Figure 7 and Photograph 12) would be acceptable if an accessible space is not added next to the alley on Third Street and the town chooses to distribute the new accessible spaces within the core area of downtown. There is, however, some concern about utilizing the existing corner curb ramp at this location.

Placing accessible spaces at the intersections will improve sight distance. Although the areas designated for access aisles are generally designated as "No Parking" zones, vehicles still park in these areas. The threat of a very substantial fine would greatly reduce or eliminate illegal parking in the access aisles, improving sight distance at these intersections.