



Cheyenne Municipal Area Parking Study



Prepared for:

The City of Cheyenne
2101 O'Neil Avenue, Cheyenne, WY 82001

Prepared by:

Charlier Associates, Inc.
2919 Valmont Road, Suite #206, Boulder, CO 80301

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EXECUTIVE SUMMARY

PROJECT BACKGROUND

The City of Cheyenne conducted a parking study of the Cheyenne Municipal Complex in 2016. The primary goals of this parking study were to:

- inventory existing parking management practices, issues/concerns, and parking supply and demand at peak times within the Cheyenne Municipal Complex;
- provide recommendations for improving parking management, including accounting for the loss of the 186-space West lot that will occur as part of the Civic Center Commons Project (see below); and
- develop schematic drawings for redesigning on-street parking and two City-owned off-street parking lots (the North lot and the dirt lot at Bent and 20th Street) to potentially increase overall parking supply and better serve the parking needs of the area.

This report provides a summary of findings and recommendations. **Part 1** is a Parking Management Strategy to address the first two goals; **Part 2** is a Parking Design Analysis report that provides a summary of findings and recommendations for the development of concept designs, as well as an analysis of potential modifications to on-street parking configurations in the vicinity of the Municipal Complex.

CIVIC CENTER COMMONS OVERVIEW

This Parking Study was undertaken in part because the City of Cheyenne is redeveloping the West Parking Lot (bound by 20th Street, Bent Avenue, 21st Street and O'Neil Avenue) into a new public open space as part of the Civic Center Commons project. The goals of the Civic Center Commons project include flood mitigation, economic development and the addition of a public outdoor space within downtown. The project is expected to remove 186 parking spaces in the City-owned West Lot that currently provide parking for the Cheyenne City Building and Civic Center (both across O'Neil Avenue from the West Lot). Off-street parking would continue to be provided by the 155-space North Parking Lot, 542-space Cox Parking Garage and 14-space Civic Center Lot (for loading and employees), as well as parking along nearby streets.

A primary intent of this parking study is to estimate the effects of repurposing the West Parking Lot and to provide recommendations for managing off-street and on-street parking in the future within the Civic Center Municipal Complex to meet demand and support future infill development.

STUDY FINDINGS

Existing On-Street Parking

- On-street parking within the study area is **underutilized** even during peak times.
- The highest demand for on-street parking sampled was 66% full during a weekday event when 23 buses were parked on-street (with each bus using about 2-3 parking spaces).

Existing Off-Street Parking

- Off-street parking within the study area is **underutilized** even during peak times.
- The highest demand for off-street parking was 63% during a weekday event.
- The highest demand for off-street parking just among the three City-owned lots was only 66% - well below the conservative 90% target.

Parking Utilization Findings

- The study area is **over-parked** (never more than 66% full).
- The Cox garage and North Lot could absorb parking demand from the West Lot during peak parking demand, if City employees would park in the Cox garage. The only exception would be if jury duty and a daytime event at the Civic Center overlapped.
- There is high demand for on-street parking within one block of the Civic Center during events.
- The private parking lot at the City Center office building across 20th Street from the Civic Center appears to be used illegally by Civic Center patrons during events.

Opportunities to Increase Off-Street Parking

- Paving the gravel lot serving the Cheyenne Fire and Rescue Station at 20th Street and Bent Avenue could provide **34-39 additional spaces**, depending on relocation of the existing storage shed. Some of these spaces would likely need to remain for use of fire employees, with the remainder adding to the public parking supply within the Municipal Complex area.
- Repaving the Municipal Complex North Lot at 22nd Street and O'Neil Avenue was viewed as another potential opportunity to increase off-street supply. However, the lot is currently striped with smaller spaces and drive aisles than is currently recommended by code, so **no additional parking gain** can be achieved within this lot.

Opportunities to Increase On-Street Parking

- Several streets within the Municipal Complex study area were examined for potential to **switch from parallel parking to diagonal parking**. Due to street widths (44' typical) such striping retrofit would necessitate removal of parallel parking from both sides of a street to be replaced with diagonal parking along one side. Depending on the presence of driveways and existing parking restrictions, some blocks would offer net parking gain from this treatment; others would not.

- If implemented, a switch to diagonal parking within the Municipal Complex Area would have a traffic calming effect along streets and is recommended to be accompanied by the construction of curb extensions at various intersections. This would also increase the overall pedestrian-friendliness of the civic area by further calming traffic and shortening pedestrian crossing distances.
- Area-wide gains to on-street parking would depend on the coordinated implementation of various projects. Different scenarios for potential changes to the on-street supply are detailed in Part 2 of this report.
- The scenario representing the largest increase in on-street parking supply would involve creating an expanded Civic Center Commons park with closure of 21st Street, switching to diagonal parking along Bent and O'Neil Avenues, adding perpendicular parking along the alley, and removing a travel lane to add diagonal parking along the north side of 20th Street, as follows:

| Street Corridor | Net Gain/Loss | Notes |
|--|-------------------|--|
| Bent Avenue | +12 | diagonal parking with closure of 21 st |
| O'Neil Avenue | +4 | diagonal parking with closure of 21 st |
| 22 nd Street | 0 | no change recommended |
| Alley btwn 22 nd /21 st | -7 | removal of existing off-street lot |
| | +20 | addition of perpendicular parking |
| 21 st Street | -19 | street closure |
| 20 th Street | +27 | removal of one travel lane and reconfiguration to diagonal parking |
| On-Street Total | +37 spaces | |

Parking Management Recommendations

- Managing existing parking supply will be critical to **ensure efficient utilization** of the existing parking supply and accommodate parking demand once the West Lot is converted to a civic park.
- Short-term management strategies to be implemented within three years include reassessing use of the Cox Parking Garage, enforcing parking regulations, utilizing shared parking during events, developing a bus parking plan for events, and providing parking education to employees and visitors.
- Recommended long-term management strategies include implementing pedestrian streetscape and safety design improvements, increasing and managing on-street parking supply, adding off-street parking and potentially, constructing a new parking structure if/when warranted by future increases in parking demand.

PART 1: PARKING MANAGEMENT STRATEGY

BASELINE DATA & INFORMATION

Baseline data and information for this project was collected through the following means:

- through meetings with key City Staff, MPO staff and other stakeholders to set objectives, understand current parking issues and management strategies and define the study area for the project;
- through a detailed inventory of all on-street and off-street; and,
- through a robust parking utilization study conducted by MPO staff on four days in April 2016 to measure typical and peak period parking demand within the study area.

A. Parking Inventory

Figures 1 and 3 (below) provide a map of the study area and overview of the off-street and on-street parking spaces inventoried. A total 1,521 parking spaces were inventoried in the study area, including 1,260 off-street spaces and 261 on-street spaces.

Off-Street Parking

Currently, there are 1,260 off-street parking spaces within the study area. All but 111 of these spaces are publicly-owned, either by the City of Cheyenne or Laramie County. See Figures 1 & 2 below.

Figure 1. Off-Street Parking Inventory Map & Summary

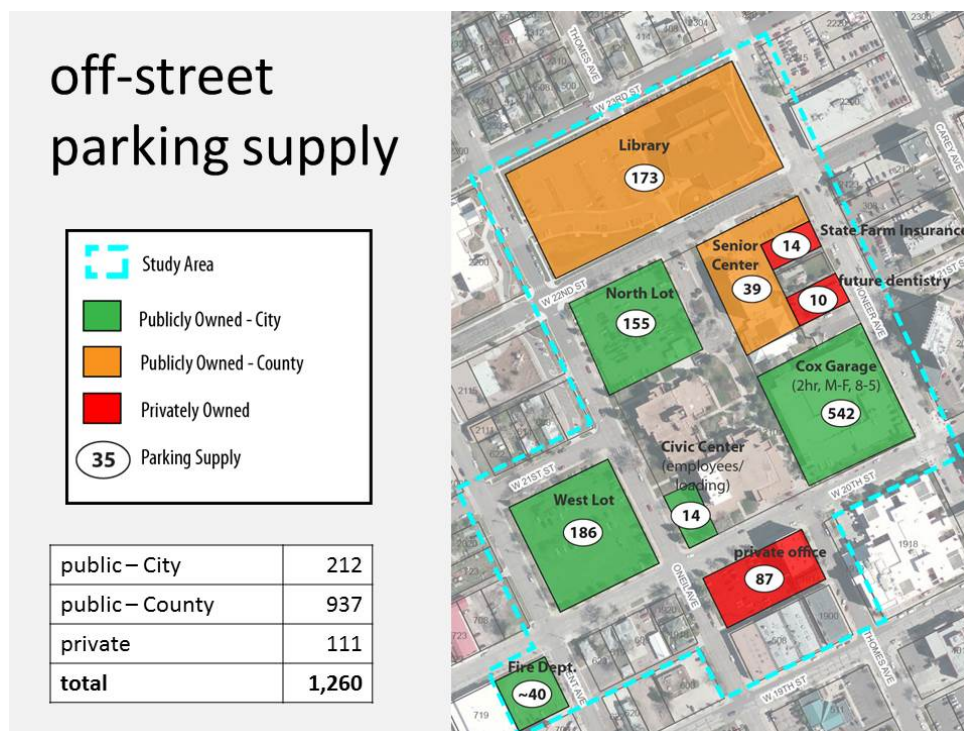


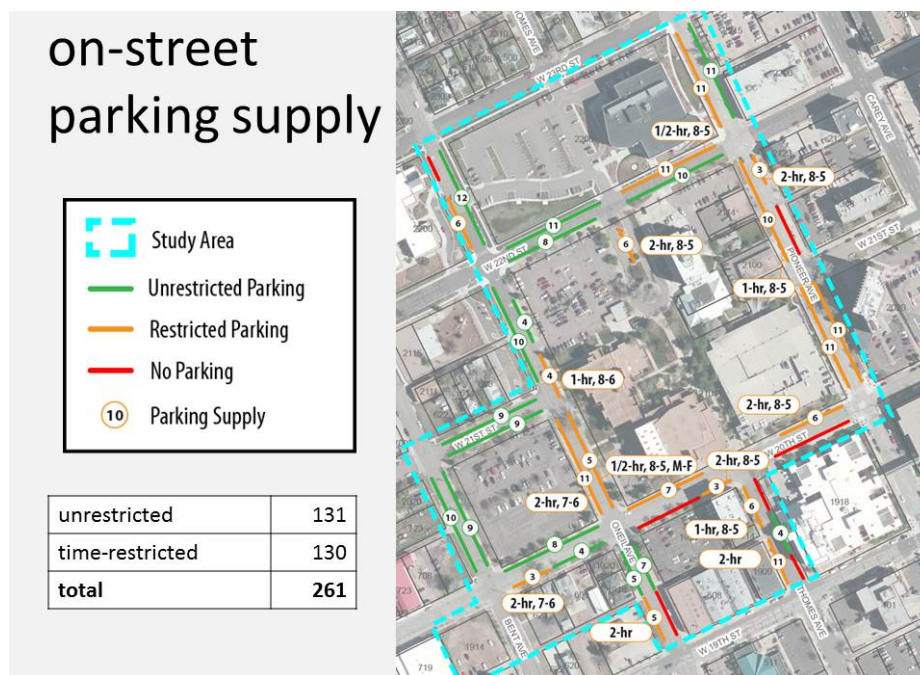
Figure 2. Summary – Off-Street Parking Supply

| Lot | Ownership | Spaces | Restrictions | Notes |
|-------------------|-----------|--------|---|--|
| Cox Garage | City | 542 | 2-hr free parking M-F 8-5 or obtain a permit (\$45/month) | 190 spaces reserved for County employees; 164 permits (State – 72, Courthouse – 38, Capital Project -54) |
| West Lot | City | 186 | municipal complex parking only; no unauthorized overnight parking; no time restrictions | |
| North Lot | City | 155 | no unauthorized overnight parking; no time restrictions | |
| Library | County | 173 | for library use only; no time restrictions | 38 spaces reserved for employees |
| City Center Bldg. | Private | 87 | paid private parking | Civic Center patrons observed parking here illegally |

On-Street Parking

Currently, there are 261 on-street parking spaces within the study area. About half of these spaces are time-restricted (½-hour, 1-hour or 2-hour) typically on weekdays from 8am-5pm. Most of the time-restricted parking is within a block of the Civic Center or adjacent to the library. Parking inventory for each block face and regulation type (if any) is mapped in Figure 3. All on-street parking within the study area is parallel parking, with the exception of two locations with diagonal parking: a half block on one side of Thomes Avenue between 19th Street and 20th Street and on Thomes Avenues just south of 22nd Street.

Figure 3. On-Street Parking Inventory Map & Summary



B. Parking Utilization

A parking utilization audit was conducted on four days in April, 2016 by Cheyenne MPO staff. Staff counted the vehicles parked in the study area every hour, by off-street location and on-street block face (see Figure 4). The four counts included: one typical weekday to establish a baseline and during three separate events at Civic Center to get a sample during peak parking demand. The events in which parking utilization was recorded included a weekday daytime event, a weekday evening event and a weekend event. The weekday evening event was sold out.

Figure 4. Parking Utilization Data Collection Summary

| count type | date | time | event | count frequency | total counts |
|-----------------------|-----------------|----------|--|-----------------|--------------|
| typical weekday | Tue, April 12th | 10AM-6PM | - | hourly | 9 |
| weekday daytime event | Thu, April 7th | 8AM-12PM | FFA Conference | hourly | 5 |
| weekday evening event | Tue, April 19th | 4PM-8PM | Joseph & The Amazing Technicolor Dreamcoat | hourly | 5 |
| weekend evening event | Sat, April 30th | 8PM | Symphonie Fantastique! | 1 count | 1 |

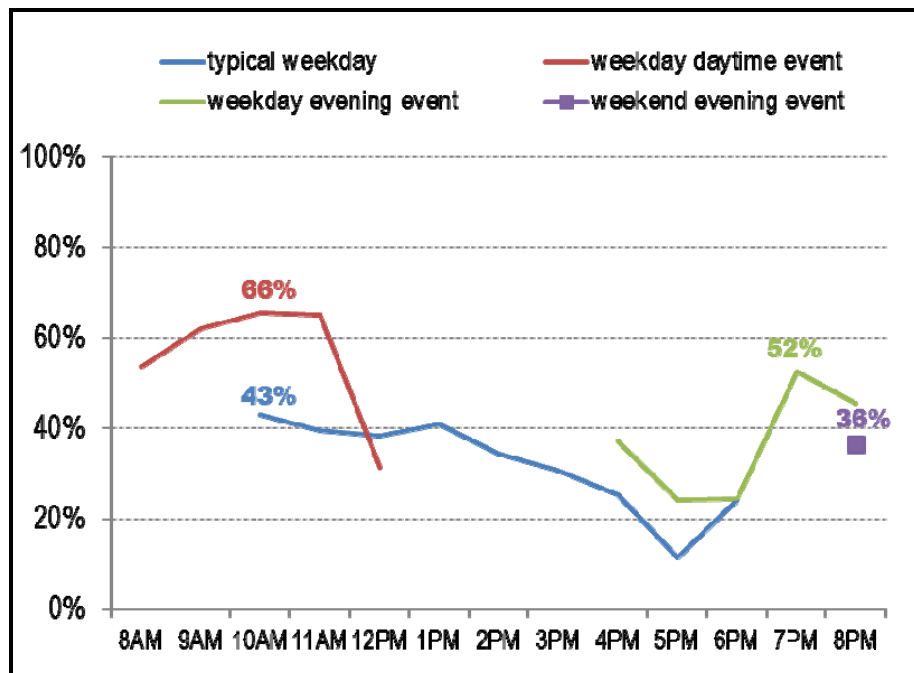
On-Street Utilization

Figure 5 provides a summary of parking utilization for the 261 on-street parking spaces within the study area. A common benchmark for on-street parking is about 85% full. On a typical block with parallel parking, 85% full would result in about 1-2 available parking spaces on each side of the street. Anything less and available parking would be considered underutilized. Anything more than about 85% full and on-street parking may be difficult to find and could result in driver frustration and excess circulation.

Key On-Street Parking Take-Aways

- on-street parking within the study area is underutilized even during peak times
- the highest demand for on-street parking sampled was 66% full during a weekday event when 23 buses were parked on-street (with each bus using about 2-3 parking spaces)

Figure 5. On-Street Parking Utilization (study area total)



Off Street Utilization

Figure 6 provides a summary of the findings of parking utilization among the 1,260 off-street parking spaces within the study area. A common benchmark for peak off-street parking utilization of a given parking lot is about 90-95% full. Anything less and the parking spaces would be considered underutilized. Anything more than about 90-95% full and parking may be difficult to find and could result in driver frustration.

Figure 7 provides a summary of parking utilization among the 873 off-street parking spaces on the three City-owned parking lots (Cox garage, North & West lots).

Key Off-Street Parking Take-Aways

- off-street parking within the study area is underutilized even during peak times
- the highest demand for off-street parking was 63% during a weekday event
- the highest demand for off-street parking just among the three City-owned lots was only 66% - well below the conservative 90% target

Figure 6. Off-Street Parking Utilization (study area total)

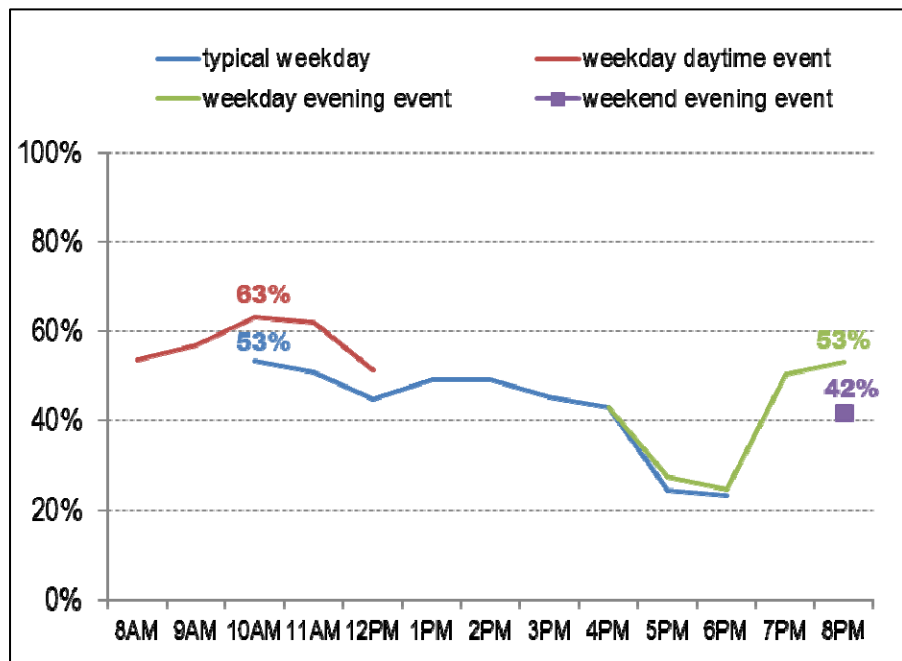
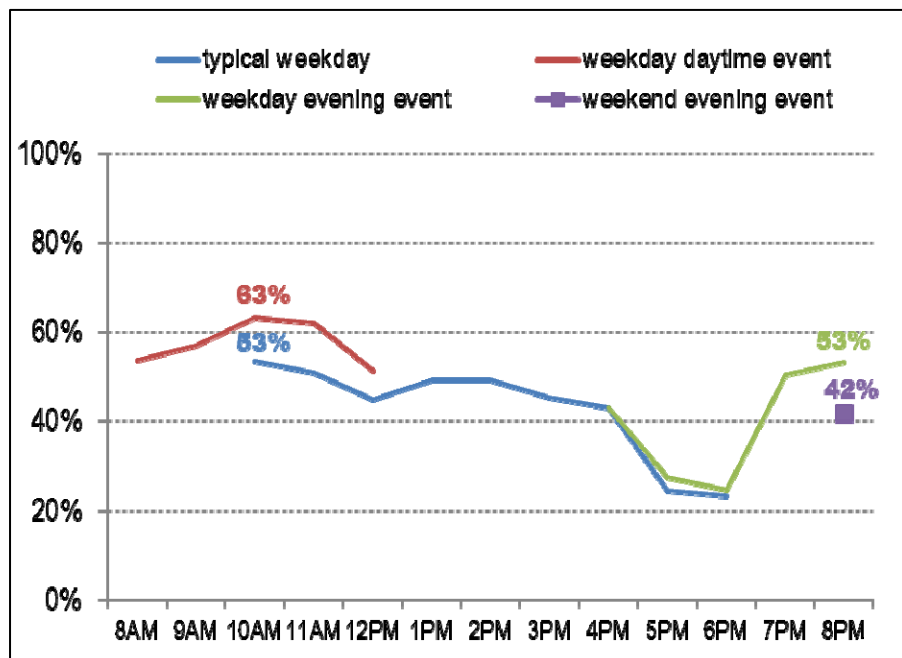


Figure 7. Off-Street Parking Utilization on City-Owned Lots (Cox garage, North and West Lots)

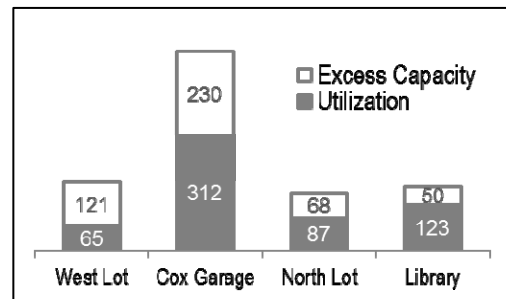


Peak Hour Parking By Location

Appendix B provides a detailed color-coded map illustrating peak-hour parking demand on each of the four days for all 10 off-street parking lots and all 33 on-street block faces within the study area. A summary of peak hour demand on each of the four days sampled is provided below.

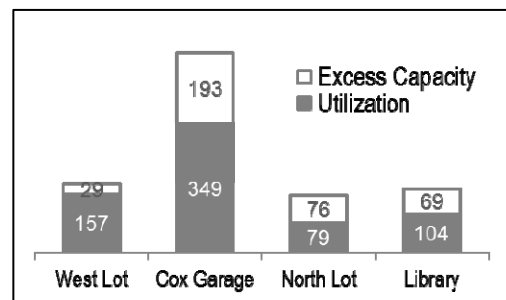
Typical Weekday - Peak Hour (10AM)

- no off-street parking lot was more than 75% full
- there was excess capacity in the North Lot and Cox garage to absorb all vehicles parked in the West Lot (see chart at right)
- a few on-street blocks were full, but ample parking was available non adjacent blocks
- the library was 71% full
- the private lot on 20th Street was 44% full



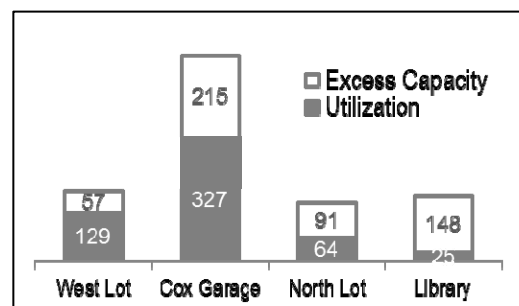
Weekday Event - Peak Hour (10AM)

- the West lot was 84% full
- all other lots were less than 75% full
- there was excess capacity in the North Lot and Cox garage to absorb all vehicles parked in the West Lot (see chart at right)
- 23 buses were parked on-street and one was parked in the West Lot
- several on-street blocks were full due mostly to bus parking, but in every case parking was available on adjacent blocks



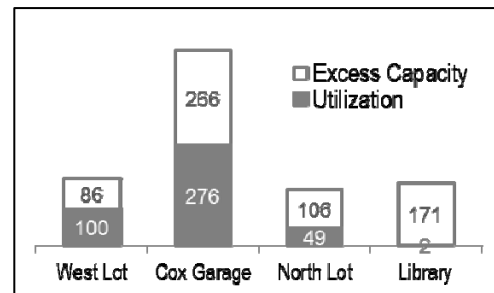
Weeknight Event - Peak Hour (8PM)

- this event was sold out
- the private lot on 20th Street was 82% full
- all other lots were less than 75% full
- there was excess capacity in the North Lot and Cox garage to absorb all vehicles parked in the West Lot (see chart at right)
- several on-street blocks within a block of the Civic Center were full, but farther away were mostly empty
- the library was only 14% full
- the North lot was only 41% full



Weekend Event - Peak Hour (8PM)

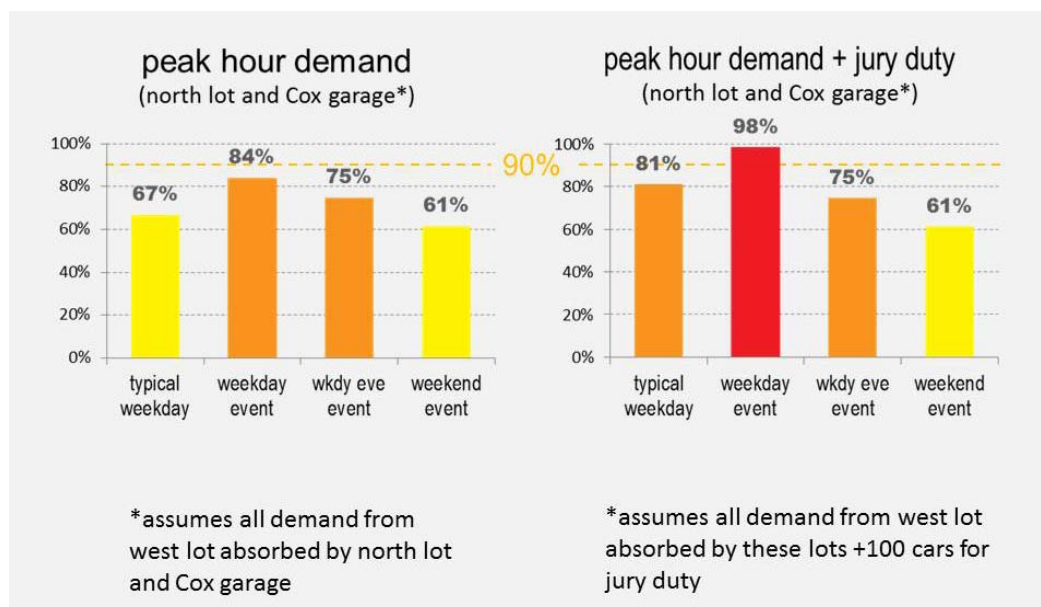
- all off-street parking lots were less than 75% full
- there was excess capacity in the North Lot and Cox garage to absorb all vehicles parked in the West Lot (see chart at right)
- several on-street blocks within a block of the Civic Center were full, but farther away were mostly empty
- the library was only 1% full
- the North lot was only 32% full
- the private lot on 20th Street was 47% full



Scenarios without the West Parking Lot

One of the primary questions to be answered through this study is whether there would be sufficient parking capacity available in the North Parking Lot and Cox garage to absorb the parking demand from the West Parking Lot. The chart on the left of Figure 8 (below) illustrates that during the peak parking demand on each of the four days when cars were counted, if all of the cars parked in the West Lot were parked in the North Lot and Cox garage, those two lots would still be below 90% full.

Figure 8. Scenarios without the West Parking Lot



On occasion, the Municipal Court across 20th Street will request parking spaces in the Cox garage for jurors during jury duty. On the most recent jury duty day prior to this study, the Court requested 90 parking spaces. Thus the chart on the right in Figure 8 (above) shows how full the

Cox garage and North Lot would be if these lots absorbed all the cars parked in the west lot plus 100 additional cars that could be parked there during jury duty. Even in this scenario, there would be sufficient capacity in three of the four sample days during the peak hour to handle parking demand. The only scenario where parking demand would reach capacity is if jury duty were to fall on the same day as a weekday daytime event at the Civic Center (and even in this scenario the lots would be a combined 98% full – below maximum capacity, but above the 90% benchmark for off-street parking).

Parking Utilization – Summary of Findings

- study area is over-parked (never more than 66% full)
- the Cox garage and North Lot could absorb parking demand from the West Lot during peak parking demand
 - only exception would be if jury duty and a daytime event at the Civic Center overlapped
 - would need to allow City employees to park in the Cox garage
- there is high demand for on-street parking within 1 block of the Civic Center during events
- private parking lot at the City Center office building across 20th Street from the Civic Center appears to be used illegally by Civic Center patrons during events

C. Stakeholder Meeting

A stakeholder meeting was held as part of this project in early May, 2014, during which the parking audit data was presented and issues, opportunities and objectives related to parking in the Cheyenne Municipal Complex were discussed. Representatives from the following organizations participated:

- Cheyenne MPO
- Cheyenne Planning Department
- Cheyenne Engineering Department
- Cheyenne Special Projects/Parking Department
- Cheyenne Fire Department
- Cheyenne Civic Center
- Laramie County Courts
- Laramie County Library
- Wyoming State Administration and Information Office
- St. Mary's Catholic School

A full summary of the meeting can be found in Appendix C. Key outcomes of the meeting can be summarized as follows:

- Civic Center staff have serious concerns about having convenient parking available to retain their clientele once the West Lot is redeveloped
- Having a location to stage buses during school events will be important for retaining those events in the future

- Library management expressed that they would be open to shared parking in the Library in the evening when their demand is low, but not during day when their parking demand is high
- The Fire Department would be open to using their lot at the southwest corner of Bent Avenue and 20th Street for oversized vehicle parking if the lot is paved and redesigned
- If the North Lot and Cox garage are to become the primary lots for visitors to the City building and Civic Center, there may be a need for a new stairway at the northwest corner of the Cox garage; there may also be a need to update the pedestrian plaza between the garage and Civic Center and North Lot
- The owner of the private parking lot across 20th Street from the Civic Center has threatened to start towing cars that are parking there illegally during Civic Center events
- There may be a need for a corridor-wide traffic study before on-street angled parking is considered on Pioneer Avenue or 20th Street
- In the future, as the Municipal Complex and downtown redevelops there should be active communication and coordination between departments within the City and between agencies in regards to parking

SHORT-TERM RECOMMENDATIONS

This section provides recommendations to be implemented where feasible prior to redeveloping the West Lot and at most within a three year time frame to ensure efficient utilization of the parking supply and accommodate parking demand once the West Lot is removed. These recommendations are based on findings from the parking supply and demand field work and analysis, issues and opportunities identified by stakeholders and existing parking management practices.

Short-term parking management recommendations are organized into the following five categories, with strategies for each described in detail following:

- A. Cox Parking Garage
- B. Enforcement
- C. Shared Parking
- D. Bus Parking
- E. Managing Expectations

A. Cox Parking Garage

The Cox parking garage (built in 1993) was a significant investment by the City and County and is a valuable resource to the area. To ensure the parking garage continues to provide the maximum benefit to the visitors and employees who use it, the City should consider implementing the following short-term strategies.

- Conduct a Detailed Parking Audit – The City should conduct an additional parking audit similar to the one used as part of this parking study, but just within the Cox parking garage. The parking audit should provide a higher level of detail by separating the vehicles counted in the garage into three groups: those parked in the 190 reserved spaces for County employees, vehicles parked with monthly permits, and all other vehicles. Hourly counts should be conducted over at least one full day and should sample turnover for all three types of vehicles mentioned above. The goal of this study would be to collect data on who is using the Cox garage, including how many of the County reserved spaces are being used, how many of the permits are being used and on average how long vehicles are parked (in the County reserved spaces, by vehicles with permits and by the general public). This information will help to inform other management decisions and enforcement strategies within the Cox garage in the future.
- Increase Efficiency of County Reserved Parking Spaces – Per the MOU between the City of Cheyenne and Laramie County as part of funding and construction of the Cox garage, 190 spaces within the garage are to be reserved for the sole use by the County for 40 years from the completion date of the garage. Thus there are 190 spaces spread out over each level within the garage signed “Laramie County Employee Parking Only.” While the agreement to allow 190 County vehicles to use the garage is legally required to be preserved for at least another 18 years, the current system is inefficient and would benefit from improvement. To maximize the City and County’s investment in the parking structure, it is recommended that the City do one of two things:
 - *Eliminate Reserved Parking Signs and Issue Permits Instead* - If legally feasible, the County reserved signs should be removed and instead the County should be issued 190 parking permits (similar to the arrangements with the State). This would allow for more efficient use of the garage for the spaces that County employees do not need. Without a more detailed study its unclear how many of the County reserved spaces are typically in use, but its likely that some spaces sit empty most of the time. It’s also unclear if this strategy would be possible under the existing MOU or if the County and City would have to create an addendum to the original MOU.
 - *Improve Existing Signs* - If the first option is not possible, then the signs should be changed to more clearly indicate that reserved parking is only in effect Monday-Friday from 8am-5pm. Most of the demand for Civic Center parking is in the evening and weekends and the current signs do not make it clear to visitors that they are allowed to park in the County reserved spaces during non-business hours.

- Issue Permits to City Employees – When the West Lot is redeveloped it will not be possible to provide enough capacity for all City employees and visitors in the North Lot alone. Thus, to ensure that there is sufficient parking in the North Lot for visitors who need to park for more than 2 hours, the City should issue permits for at least a portion of its employees to park in the Cox parking garage.
- Relocate City and County-Owned Vehicles – The City and County currently store vehicles on the third level of the garage. While this system works today, once the West Lot is redeveloped and as demand increases over time these parking spaces will become more valuable particularly during peak demand. The City and County should relocate these vehicles for long-term storage in a different lot with lower parking demand, but in a place that's convenient enough to still be useful.
- Manage Demand During Jury Duty – On jury selection days the Courts will typically request about 90 or so parking spaces be made available to potential jurors in the Cox garage. Based on the parking utilization data, on a typical weekday there would still be plenty of capacity in the Cox garage to accommodate 90+ additional vehicles once the West Lot is removed. To continue to enforce parking regulations on these days, it is recommended that jurors be mailed parking permits and instructions to park in the Cox garage as part of their jury summons. On the rare occasion that a jury summons falls on the same day as weekday daytime event at the Civic Center, it would be a good idea to have a parking plan in place for this instance, potentially directing City or County employees to use a different parking lot just on that particular day.

B. Enforcement

One of the keys to effectively managing parking is to enforce parking regulations. Parking regulations increase turnover and promote efficient use of parking spaces to effectively and safely meet demand from all users. However, by nature people will test the system and if the parking regulations are not enforced, the regulations will become less effective as a tool.

Two full-time employees currently enforce parking for the entire City, including all on-street spaces and the two City-owned parking structures. As demand increases, particularly in the Municipal Complex, the City should consider the following strategies to improve enforcement.

- Upgrade to Hand Held Meters with Plate Readers – The City recently upgraded from using chalk to using hand held meters to enforce parking time-limits. While this reduces the instances of people wiping away the chalk, because these meters require enforcers to manually enter license plates, it actually takes more time than using chalk. To improve this, the City should consider upgrading to hand held meters with plate readers. This would allow enforcers to cover a larger area in a shorter amount of time.
- Implement a Graduated Ticket System – The City currently issues \$15 tickets for all parking violations. It is recommended that instead the City use a graduated system whereby the price of the second and third tickets for scofflaws (repeat offenders) within a given time period (six months or a year) would gradually increase. This system is more

effective for those who repeatedly park illegally because they don't mind the risk of occasionally receiving a \$15 ticket. Additionally, it is recommended to use revenue from tickets and parking permits to fund enforcement.

- Continue Using Non-Uniformed Officers – The existing parking enforcers within the City of Cheyenne are not uniformed police officers. It is recommended Cheyenne continue this practice. Parking enforcement should be “inevitable, but friendly.”
- Coordinate with Downtown Parking Study – The City is currently undertaking a larger parking study for the downtown. Once this study is complete, parking enforcement practices and strategies within the Cheyenne Municipal Complex should be coordinated with the overall parking enforcement strategy identified in the downtown parking study.

C. Shared Parking

Shared parking could become a valuable tool to maximizing efficiency of the existing parking supply within the Cheyenne Municipal complex, particularly as infill development increases. Because many of the Civic Center events occur during the evening and weekend there are several opportunities for utilizing shared parking during these events.

- Laramie County Library – The library parking lot is about a 1-2 block walk from the Civic Center. During a typical weekday the library parking lot was found to be about 60-70% full during the peak hour. However, during evenings and weekends, when most Civic Center events occur, the library parking lot is mostly empty and Library staff indicated during the stakeholder meeting they would be open to a shared parking system. If demand becomes high enough in the future, the library could serve as an overflow lot.
- Private Lot at the Southwest Corner of 20th Street and O'Neil Avenue – Directly across 20th Street from the Civic Center is an 87-space privately owned parking lot for use by patrons of a multi-story office building. During the day this lot is about half full and empties out by early the evening. However, during Civic Center events this lot was as much as 80% full – presumably from Civic Center patrons who are parking without permission. As a result, the owner of the private lot has threatened to start towing illegally-parked vehicles. This situation presents an opportunity for the City to explore cooperatively making use of this lot during non-business hours for Civic Center patrons. It is recommended that the City initiate a conversation with the private owner and explore the owner's interest in identifying terms for allowing parking or leasing parking to the City during Civic Center events.
- Fire Department Lot – The City owns an existing dirt parking area on the southwest corner of Bent Avenue and 20th Street that is used by the City Fire Department primarily as an overflow lot during emergency call-ins. The City has expressed interest in redeveloping this lot into an oversized vehicle parking lot. During the stakeholder meeting the Fire Department was open to this possibility if the lot were paved and redesigned. It is recommended that the City explore using this lot for over-sized vehicles and for staging buses during events at Civic Center.

D. Bus Parking

During the stakeholder meeting staff from the Civic Center expressed the need to be able to stage buses during school events at the Civic Center. Fortunately, one of the parking utilization counts conducted as part of this study occurred during one of the largest school related events of the year, the Future Farmers of America (FFA) conference. During this event a total of 23 buses were parked on the street and one bus was parked in the West Lot. To retain these types of events at the Civic Center the City should consider using the following strategies to meet demand for bus parking and staging during these events.

- Develop an Event Bus Parking Plan – The City should develop an event bus parking plan to manage parking and staging of buses during school-related events at the Civic Center. The plan should ensure efficient loading and unloading and should coordinate the bus parking needs with the parking needs of visitors and employees on a typical weekday.
- Cone – Off On-Street Bus Staging Areas – As parking demand increases it may be necessary to cone off certain on-street block faces prior to an event to ensure buses can be efficiently staged for loading and unloading during Civic Center Events. This strategy should be implemented as part of a larger Event Bus Parking Plan.
- Designate an Oversized Vehicle Lot – As part of the Event Bus Parking Plan, the City should designate an off-street parking lot nearby where buses can park during the event. This could be the Fire Department lot if redeveloped (see above) or another nearby parking lot with excess daytime capacity.

E. Managing Expectations

While the parking utilization study revealed that there is sufficient capacity even during peak demand to accommodate parking once the West Lot is redeveloped, with this change and potential future infill to the area, the parking dynamics of the region will gradually change. The existing parking supply will become more efficiently used and as a result it will be critical to manage expectations of employees, visitors, agencies and other stakeholder through the following strategies

- Improve Inter-Departmental and Inter-Agency Coordination – A diverse set of employees, residents and visitors all patronize the multiple public buildings, schools and private businesses in and around the Civic Center Municipal Complex every day, each generating different demand for parking. In order to manage the diverse parking needs of the area, prevent unnecessary conflicts and develop a collaborative parking management strategy, the City should improve coordination both internally between departments and externally between agencies and other stakeholders on large scale public projects and projects that impact parking in the area.
- Provide Civic Center Parking Instructions – As part of purchasing tickets for Civic Center Events the City should provide clear instructions on where visitor are to park given the specific date and time of the event.

- Jury Duty Parking Instructions – As part of one’s Jury summons, jurors should be provided with a parking permit and specific instructions of where to park.
- Employee Parking Instructions – The City should take a more proactive role in directing City employees in where to park, whether it be in a specific lot or part of lot. This will help ensure parking is available in the right places to meet visitor’s needs.

LONG-TERM RECOMMENDATIONS

This section provides a list of long-term recommendations that, while not as urgent as the short-term recommendations, may be needed in the future to increase parking supply and efficiency with the addition of new infill development, more programmed events and employment growth in the area.

A. Pedestrian Design Improvements

The stakeholder meeting revealed a desire for pedestrian design improvements as part of shifting the primary visitor parking location from the West Lot to the North Lot and Cox garage for those visiting the City Building and Civic Center.

- Add a Stairway to the Cox garage - The City should consider adding a new stairway in the northwest corner of the Cox garage to improve safety and circulation of pedestrian traffic between the upper levels of the Cox garage and the Civic Center and City Building.
- Redesign Pedestrian Plaza – After the West Lot is redeveloped, most visitors to the City Building and Civic Center in the future will park in the North Lot and Cox garage. This will result in more pedestrian traffic entering these buildings from the north and east. The existing pedestrian plaza between the North Lot, Cox Garage and Civic Center is showing its age and would benefit from an upgrade. The City should consider redesigning this plaza to increase attractiveness as a public space and support pedestrian circulation and wayfinding between the Civic Center and City Building to the North Lot and Cox garage. As part of redesigning this plaza the City should also consider improving the pedestrian connection and wayfinding between the Library and the Civic Center along Thomes Avenue.

B. Increase On-Street Parking Capacity

In the future, infill development, additional events and employment growth may increase overall demand for on-street parking. When this begins to happen the City should consider the following strategies to increase on-street parking capacity in the area.

- Convert Parallel Parking to Diagonal Parking – Preliminary analysis as part of this study revealed that there may be an opportunity along 20th Street and Pioneer Avenue within the study area to convert one side of the street from parallel parking to diagonal parking. This would increase the on-street parking supply within the study area. Traffic volumes, street widths and existing lane configurations would not preclude the possibility of converting parking on these streets to diagonal parking. However, 20th Street and Pioneer Avenue are designated as minor arterials and a more complete corridor-wide study of potential impacts would be needed before enacting such a change in the study area. Removal of one lanes of traffic would be needed on 20th Street to implement diagonal parking. In addition, bike lanes may be added in the future to one or both of these streets. If this occurs the bike lanes should be placed on the opposite side of the street from diagonal parking. At first glance, the other streets in the study area appear too narrow to accommodate diagonal on-street parking, but phase 3 of the project (which is ongoing) will develop schematic drawings for how diagonal on-street parking could potentially work in the study area.
- On-Street Parking Management – The City should continue to monitor on-street parking demand within the study area. If demand begins to outpace supply during certain times, or if on-street parking spaces go underutilized for large parts of the day, the City should consider different management strategies to ensure there is available and efficient use of on-street parking for those who need it. During high demand times of the day, on-street parking should be prioritized for short-term use. Potential strategies to achieve this include changing time-limits, adding/removing time-limited spaces, designating certain parking for specific uses (when and where needed) and charging for parking.

C. Increase Off-Street Parking Capacity

In the future, infill development, additional events and employment growth may increase overall demand for off-street parking. When this appears to be happening, after implementing all the short-term recommendations above, the City should consider the following strategies to address off-street parking demand in the study.

- Conduct a Parking Audit – If significant issues related to parking begin to occur in the future as a result of increased parking demand in the area, the City should conduct additional parking audits (similar to the one conducted in this study) to survey parking inventory and utilization trends on different days and at different times of day (including during peak demand). Parking audits provide useful data to support effective coordination with stakeholders and parking management decisions.

- Add Another Parking Structure – Conversations with stakeholders in the future along with data from a future parking audit may reveal the need to one day add off-street parking capacity to the study area. If this happens, the most feasible location will likely be to add a structure to the North Lot.
- Partner to Fund – If the City and stakeholders determine a need and desire to construct another parking structure in the study area on the North Lot (or somewhere else), the City should consider partnering with other agencies or with private development projects to fund the parking structure. This type of partnership will lower the cost to taxpayers thereby increasing its feasibility, would likely improve the efficiency of such a structure (through shared parking), and would support a walkable, pedestrian-oriented design, which would benefit the efficiency of the transportation network and economic development potential for the area.
- Paid Parking – While unlikely to be needed in the near-term, paid parking in public lots may be a useful tool for managing parking during high demand times of the day long-term. Thus all future parking structures should be designed so that metered gates could be added to support a paid parking system in the future (if/when needed).

PART 2: PARKING DESIGN ANALYSIS

The design analysis component of this parking study addresses following areas:

Off-Street Parking

- A. Schematic design for paving the **Gravel Lot**, located at 20th and Bent Avenue
- B. Striping plan for repaving the **North Municipal Lot**, located at 22nd and O'Neil

Off-Street Parking

An analysis of parallel vs. diagonal on-street parking opportunities along the following streets:

- A. **Bent Avenue**, from 20th to 22nd
- B. **O'Neil Avenue**, from 20th to 22nd
- C. **West 22nd Street**, from Bent Avenue to Pioneer Avenue
- D. **alley**, located between 22nd and 21st, from Bent to O'Neil
- E. **West 21st Street**, from Bent to O'Neil
- F. **West 20th Street**, from Synder Avenue to Carey Avenue

Figure 9. Focus Areas for the Parking Design Analysis



All design recommendations for the focus areas were developed with intent to comply with the following local and national guidance:

- *Cheyenne Uniform Development Code (UDC)*, Article 4.3 – Transportation Networks and Street Design
- *Cheyenne UDC*, Article 6.2 – Parking, Lot Access and Circulation
- *City of Cheyenne Ordinance No. 3957*, relating to the parking of motor vehicles
- *2015 International Fire Code*
- *U.S. Access Board, ADA Standards* – Chapter 5: Parking Spaces
- *U.S. Access Board, Rulemaking on Public Rights-of-Way*, Section X02.6 – Vehicular Ways and Facilities

A. Gravel Lot

An existing gravel parking area, located at 20th Street and Bent Avenue, serves the Cheyenne Fire and Rescue Headquarters Fire Station. This lot is desired to be paved and landscaped to help meet Civic Center Municipal Complex parking demand when the West Lot becomes repurposed as the Civic Center Commons open space. (See accompanying Figure 10, page 24.)

Capacity

- Estimate of existing lot: **40 spaces**
- Schematic design: **39 total spaces**, including 2 accessible spaces
- Capacity if storage shed remains in existing location: **34 spaces**

Assumptions

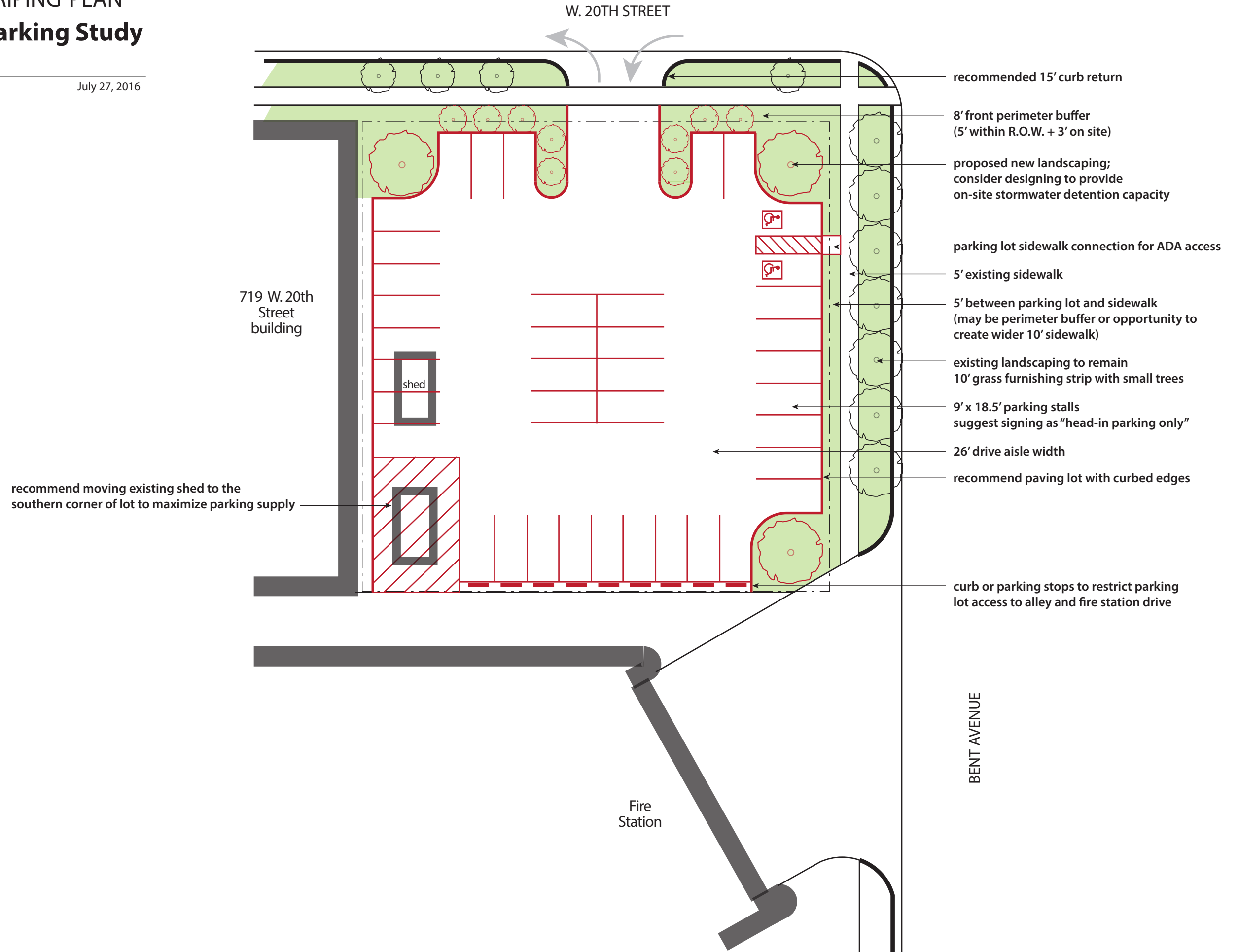
- Parking lot to be designed with 9'x18.5' spaces for passenger vehicle and pick-up truck use.
- Ingress and egress will occur as left-in/left-out off of 20th Street.
- No access to alley or sharing of fire truck exit drive will be permitted.
- The existing Fire Department storage shed to remain on site.

Implementation Considerations

- Moving the storage shed to the southwest corner of parking lot will allow for approximately 5 additional parking spaces than if shed remains in current location. Note: Fire Department access requirements to both ends of the shed will determine final number of total parking spaces that can be accommodated.
- The lot is tight to provide internal circulation and meet UDC landscape buffer requirements using 18.5' spaces and 26' drive aisles. The proposed design accommodates the following along the perimeter to meet the intent of the UDC:
 - 2.5' setback to property line along the western edge to accommodate bumper overhang
 - Along 20th Street, an 8' front landscaped perimeter buffer between parking lot and sidewalk, with 3' located on-site and 5' within the street right-of-way
 - 5' between lot and sidewalk along the eastern edge – may be implemented as a side perimeter buffer, or provide opportunity to improve and widen the existing 5' concrete sidewalk along Bent Avenue to 10' width
 - 2.5' setback to property line along the southern edge to accommodate bumper overhang, with a curb or parking stops recommended to restrict vehicular access to the adjacent alley
- Recommended using 15' curb radii at entrance drive.
- Suggest paving lot with curbs and designing landscape areas as on-site retention basins.
- Proposed internal landscaping exceeds the 5% UDC requirement.
- To meet ADA standards, 2 accessible parking spaces are needed.

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0 5 10 20 30 scale: 1" = 20'



B. North Lot

The City desires to repave and restripe the Municipal Complex North Lot, located at 22nd Street and O'Neil Avenue, as a maintenance item. (See accompanying Figure 11, page 26.)

Capacity

- Estimate of existing lot: **155 spaces**
- Restriping plan: **152 total spaces**, including 6 accessible spaces
- Capacity if introducing internal landscaping to meet UDC: **148 spaces**

Assumptions

- This is a repaving and restriping project; no major reconstruction is to occur.
- Curbs and drive accesses will remain in place.
- Explore adding internal landscaping.

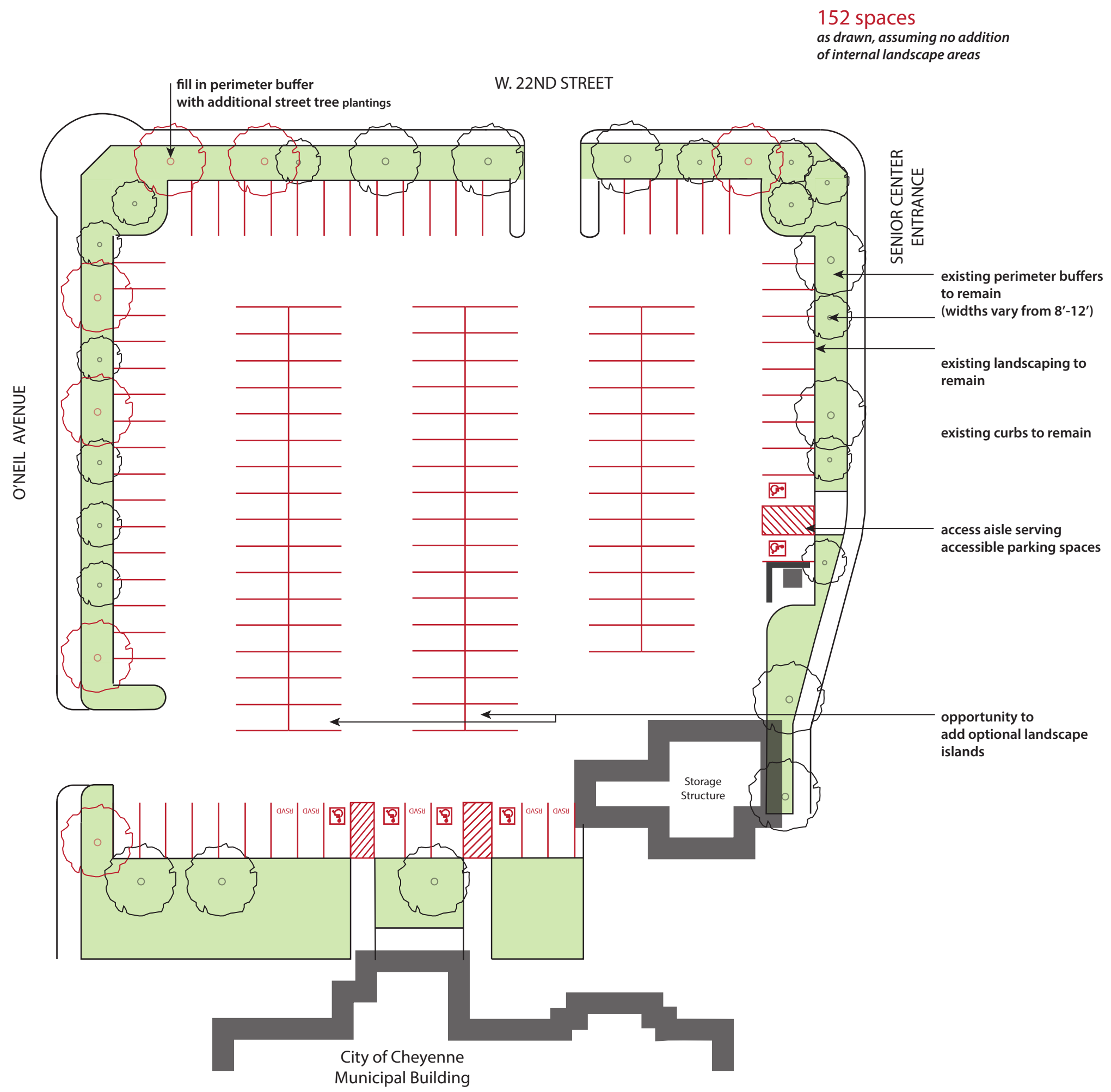
Implementation Considerations

- Existing configuration of the North Lot uses 9'x18' spaces and 22'-23' drive aisles.
- Cheyenne UDC currently requires 9'x18.5' spaces and 26' drive aisles.
- To maintain parking capacity, the existing stall dimensions are proposed to be used for the lot restriping, with removal of the existing raised gravel median to allow for 24' drive aisles.
- Perimeter buffers will remain at 12' on the north edge, 11' on east and west, and 8'-15' on the south.
- To comply with the UCD 5% internal landscape requirements, 4 parking spaces would need to be converted into landscape islands.
- To meet ADA standards, 6 accessible parking spaces are needed.

Figure 11
MUNICIPAL NORTH LOT RESTRIPIING PLAN
Cheyenne Municipal Parking Study

Charlier Associates, Inc. July 27, 2016

0 5 10 20 30 scale: 1" = 20'



ON-STREET PARKING ASSUMPTIONS

No Parking Zones

Per City of Cheyenne regulations, parking shall be prohibited in specified places, as summarized below:

- 50' from railroad crossings
- 15' from fire hydrants
- 30' from street intersections
- 5' from private drives, alleys and ADA access ramps

These no-parking zones were taken into consideration in the on-street parking quantity analyses that follow, and are represented by yellow curb lines drawn onto the aerial photography in the accompanying Figures 13 and 14. (See insert pages 29-30.)

On-Street Capacity

- Parallel parking quantities are based upon existing conditions.
- Existing street cross-sections assume the following, per City standards:
 - 44' pavement widths (one-way 20th Street excepted)
 - 11' travel lanes
 - 11' width for a combined bike/parallel parking lane
 - 7' minimum width for parallel parking
 - 22' curb length per parallel parking space
- Streets proposed for conversion to diagonal parking are to be restriped based on the following, per City standards:
 - 22' minimum street width needed for diagonal parking
 - 45° angle parking
- Figure 12, below, illustrates a typical proposed retrofit of the existing street cross-section.

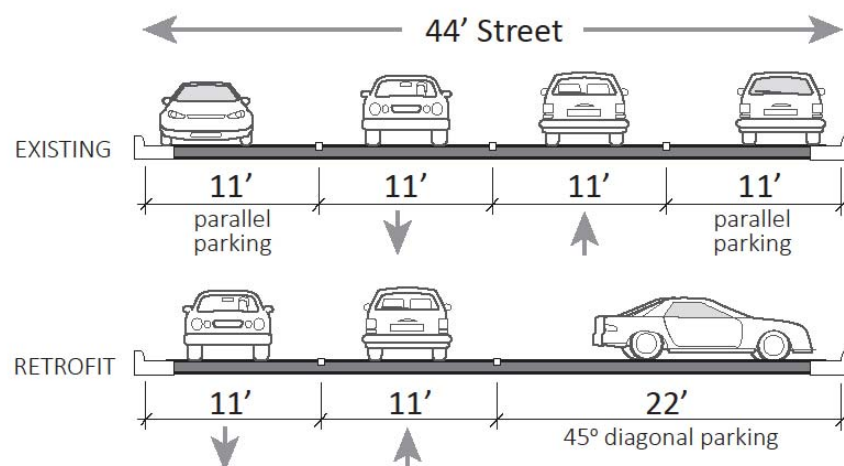


Figure 12. Proposed Modifications to 44' Street Cross-Section

Impact of Civic Center Commons

Concurrent with this parking study, DHM Design is developing conceptual park designs for the City for the Civic Center Commons project. Consultation with the project manager for the open space project includes the following items to note as related to parking inventory:

- Two park/detention area scenarios are being explored – one that utilizes only the existing Municipal West Lot; and one that closes off W. 21st Street and expands the park size by one half block to the north.
- Both park concepts propose on-street parking on all sides of the park. The decision to provide diagonal or parallel parking will be determined by this parking study.
- Both park concepts propose to use curb extensions to create pedestrian plaza areas on the corners of 20th/Bent Ave, and 20th/O'Neil Ave. (Also at 21st/Bent and 21st/O'Neil if 21st Street is to remain open.)
- All existing curb cuts for parking lot entrance drives will be removed. A maintenance access point is recommended to be located off of O'Neil Avenue, ideally in conjunction with the pedestrian crosswalk/ADA ramp located at the Municipal Building entrance. No other modifications to existing curb-and-gutter alignment are proposed as part of the park plans.
- Preliminary concept plans for the expanded park option include 12 perpendicular parking spaces located along the northern edge, accessible from the alley. The decision to provide parking along the alley, and the quantity to be accommodated, will ultimately be determined in Fall 2016 based upon public input into the proposed park concepts.

Overview of Parking Schematics

The two graphics that follow depict existing quantities of parallel on-street parking within the study area (Figure 13) and the potential retrofit of streets to remove parallel parking and replace with diagonal parking (Figure 14). The schematics include existing no parking zones, recommended locations and configuration of curb extensions, and recommended locations and quantities of handicap accessible spaces.

A detailed summary of the potential net gain/loss of on-street parking under various redevelopment and retrofit scenarios follow on pages 31-37 for each street corridor.

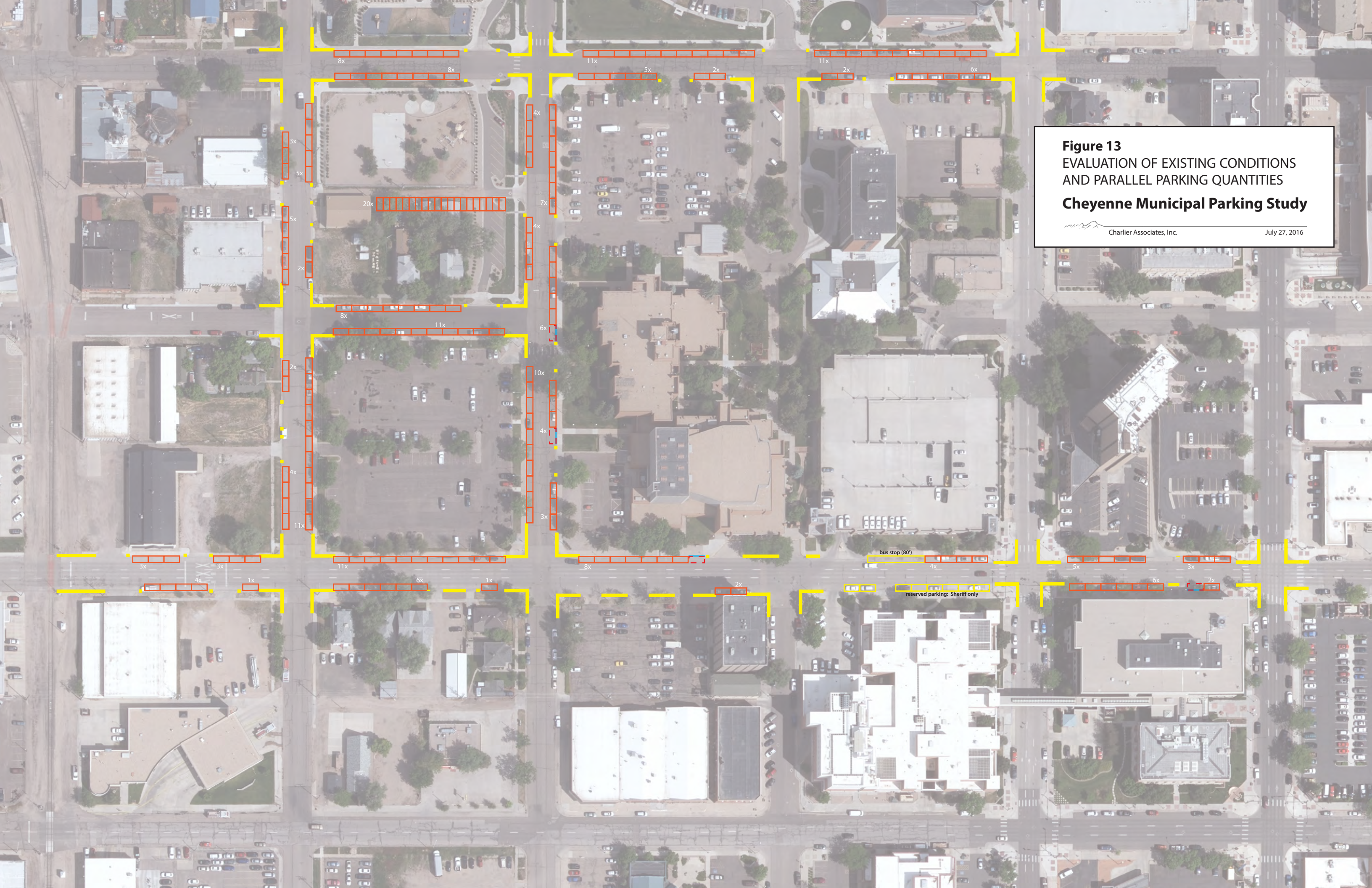


Figure 13
EVALUATION OF EXISTING CONDITIONS
AND PARALLEL PARKING QUANTITIES
Cheyenne Municipal Parking Study

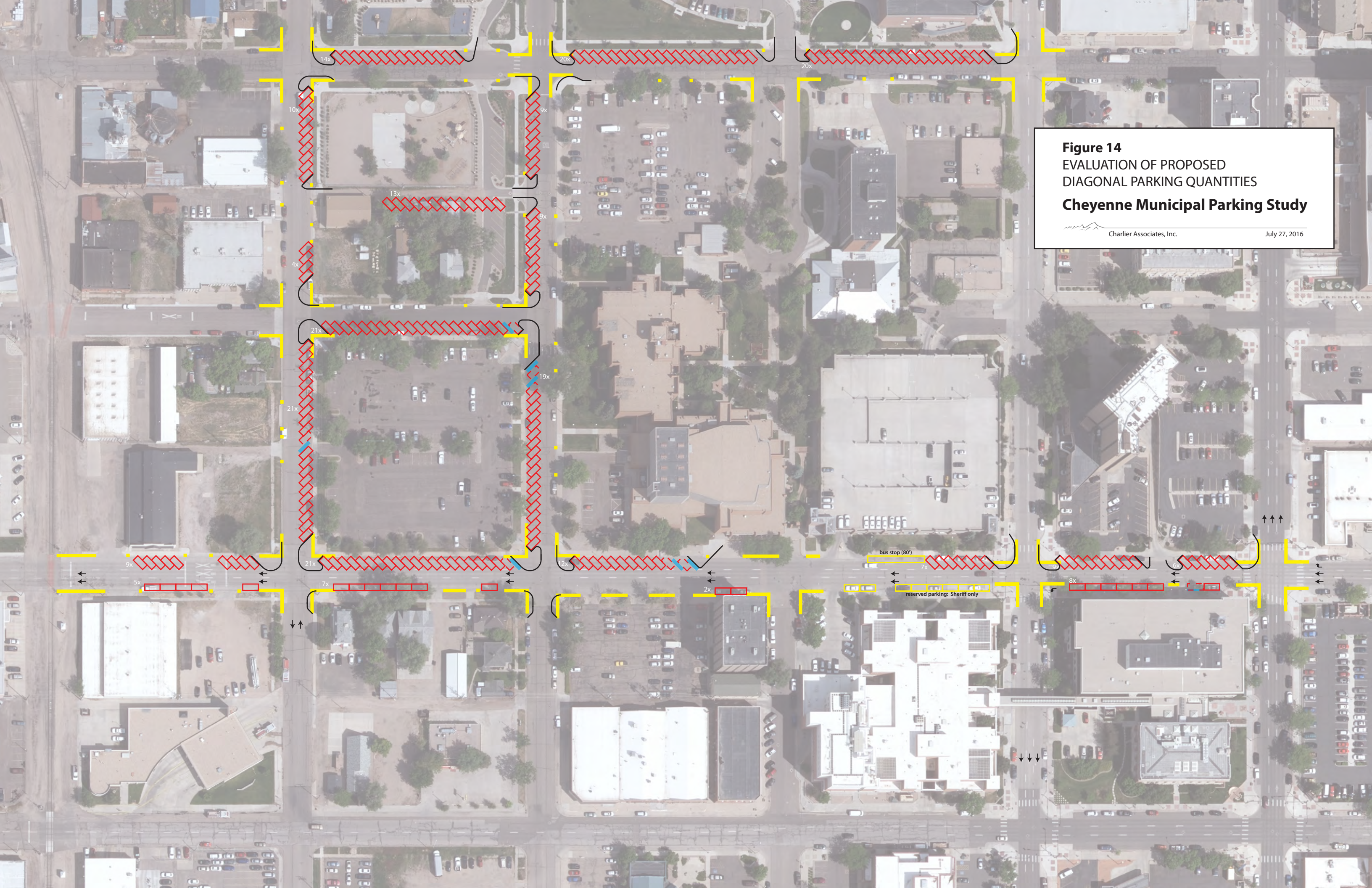


Figure 14
EVALUATION OF PROPOSED
DIAGONAL PARKING QUANTITIES
Cheyenne Municipal Parking Study
Charlier Associates, Inc. July 27, 2016

C. Bent Avenue

An analysis of the two blocks from 20th Street to 22nd Street was completed to compare on-street parking quantities for keeping parallel parking on both sides of Bent Avenue vs. providing diagonal parking on one side of the street.

Assumptions

- Parallel parking quantities based upon existing conditions.
- If provided, diagonal parking will be most feasible on the east side of the street due to the number of driveways located on the west side.

Capacity

- Existing parallel parking: **32 spaces**
- Switch to diagonal with 21st Street to remain open: **35 spaces**
- Parallel with 21st Street to be closed: **38 spaces** (net gain of 6)
- Switch to diagonal with 21st Street to be closed: **44 spaces** (net gain of 9)

Implementation Considerations

- Quantities for park expansion/closure of 21st Street incorporate additional curbside parking space to be gained at street and existing driveways south of alley. However, the shed in northwest corner is assumed to remain based upon preliminary design work for City Center Commons.
- All analyses include implementation of curb extensions at corners.
- Final design of curb extensions would be part of Civic Center Commons design plans.

D. O'Neil Avenue

An analysis of the two blocks from 20th Street to 22nd Street was completed to compare on-street parking quantities for keeping parallel parking on both sides of O'Neil Avenue vs. providing diagonal parking on one side of the street.

Assumptions

- Existing parking quantities along the east side of O'Neil Avenue reflect striped no parking areas and designated accessible spaces.
- Diagonal parking was examined for the west side of the street, which has fewer driveways and the potential street closure.
- A curb extension was included in all scenarios at the location of the existing pedestrian crosswalk leading to the Municipal Building.

Capacity

- Existing parallel parking: **38 spaces**, including 2 accessible spaces
- Switch to diagonal with 21st to remain open: **37 spaces**, including 2 accessible spaces
- Parallel with 21st Street to be closed: **42 spaces** (net gain of 4)
- Switch to diagonal with 21st Street to be closed: **42 spaces** (net gain of 5)

Implementation Considerationss

- The final park design is to include one maintenance access point, with all existing driveway cuts to be removed. This maintenance access is encouraged to be located along the eastern edge of the park and designed in conjunction with a curb extension/ADA ramp located at the existing crosswalk to the Municipal Building entrance.
- All analyses include implementation of curb extensions at corners.
- Final design of curb extensions would be part of Civic Center Commons design plans.

E. West 22nd Street

An analysis of three blocks, from Bent Avenue to Pioneer Avenue, was completed to compare on-street parking quantities for keeping parallel parking on both sides of W. 22nd Street vs. providing diagonal parking on one side of the street.

Assumptions

- The existing student loading zone parking is to remain on north side of the street in front of St. Mary's Catholic School.
- If provided, diagonal parking will be most feasible on the north side due to the student loading zone, as well as the number of driveways located on the south side of the street.

Capacity

- Existing parallel parking: **53 spaces**
- Switch to diagonal parking on north side: **54 spaces**

Implementation Considerations

- The switch to diagonal parking would require reconstruction of existing curb extensions at several intersections.
- Realignment of the curbs would also likely allow one less proposed diagonal parking space on both Bent Avenue and O'Neil Avenue.
- Therefore, the recommendation for W. 22nd Street is to have the existing parallel on-street parking configuration remain.

F. Alley

As previously noted, the Municipal Center Commons project may encompass the one block between 21st and 20th Avenues, or it may be expanded one half block to the north. Park expansion could provide opportunity for public parking along the alley, but it would close W. 21st Avenue and eliminate all parking along that street, as well as remove 7 existing spaces in the small off-street lot located alongside O'Neil Avenue.

Preliminary plans developed by DHM Design for the expanded concept include 12 perpendicular parking spaces located along the northern edge of the park, accessible from the alley. The following discussion presents maximum parking quantities that may fit into this area, pending final park design.

Assumptions

- The alley will become one-way eastbound.
- Parking, if provided, will border the park (south side of alleyway), not along the school playground (north side).
- The small off-street parking area with 7 existing diagonal spaces will be removed.
- DHM preliminary plans show an existing shed in the northwest corner to remain. Parking schematics assume that the existing access and driveway to this shed from Bent Avenue will also need to remain.
- DHM preliminary plans show parkland in the northeast corner. Parking schematics assume that parking along the alley may be extended east to O'Neil Avenue.

Capacity

- Maximum parallel parking that would fit along alley: **8 spaces**
- Maximum diagonal parking that would fit along alley: **13 spaces**
- Maximum perpendicular parking that would fit along alley: **20 spaces**

Implementation Considerations

- The decision to provide parking along the alley, and the quantity of spaces to be accommodated, will ultimately be determined in Fall 2016 based upon the public input process for the proposed park concepts.

G. West 21st Street

21st Street was also analyzed for various parking scenarios. The potentially expanded Civic Center Commons park and the resulting street closure would impact available on-street quantities as follows:

Capacity

- Existing parallel parking: **19 spaces**
- Switch to diagonal parking on south side: **21 spaces**
- Street closure: **0 spaces**
- NOTE: Street closure and park expansion would result in **6 spaces net gain** when factoring in new parking along the alleyway and gained on-street diagonal spaces along Bent and O'Neil. (See Figure 11 – Special Considerations.)

H. West 20th Street – Traffic Considerations

It is readily feasible to increase the on-street parking supply along West 20th Street through the Civic Center area (see previous section). This could be achieved by providing some diagonal parking in blocks that currently have only parallel parking, which in turn would require reducing the traveled way on 20th from three lanes westbound to two lanes westbound, with left turn bays at the intersections with Carey and Pioneer Avenues.

The two signalized intersections along this part of West 20th Street are at Carey and Pioneer Avenues. (The rest of the 20th Street Intersections are free flow with side street stop signs.) Since the lane configuration would only change west of Carey, the performance of the intersection of West 20th Street and Carey Avenue would be affected only by the conversion of the right lane from general purpose to right-turn-only (onto Carey Avenue northbound). Left turn accommodation from westbound 20th Street onto southbound Pioneer, while not critical, could be provided at the expense of one or two parallel parking spaces on the south side of 20th.

The average daily vehicle capacity of a two-lane, one-way street is shown in Figure 15 below with data from April 2016 traffic counts for comparison.

Figure 15. Maximum Peak Hour Traffic: Comparison of Actual, LOS C and LOS E

| Location | Estimated 2016 Daily Traffic Volume* | LOS C Daily 2-Lane, 1-Way Traffic Capacity** | LOS E Peak Hour 2-Lane, 1-Way Traffic Capacity** |
|---|--------------------------------------|--|--|
| West 20 th , Carey - Pioneer | 2,500 | 4,380 | 9,360 |

* Extrapolated from peak hour counts

** Source: 2010 TRB Highway Capacity Manual and 2012 Florida DOT generalized tables

The maximum daily traffic for two-lane, one-way urban streets is shown in this table for both LOS C and for LOS E, which are defined by the American Association of State Highway and Transportation Officials (AASHTO) as follows:

- **LOS C:** *stable flow, at or near free flow. Ability to maneuver through lanes is noticeably restricted and lane changes require more driver awareness. Minimum vehicle spacing is about 220 ft or 11 car lengths. Most experienced drivers are comfortable, roads remain safely below but efficiently close to capacity, and posted speed is maintained. Minor incidents may still have no effect but localized service will have noticeable effects and traffic delays will form behind the incident. This is the target LOS for some urban and most rural highways.*
- **LOS E:** *unstable flow, operating at capacity. Flow becomes irregular and speed varies rapidly because there are virtually no usable gaps to maneuver in the traffic stream and speeds rarely reach the posted limit. Vehicle spacing is about 6 car lengths, but speeds are still at or above 50 mi/hour. Any disruption to traffic flow, such as merging ramp traffic or lane changes, will create a shock wave affecting traffic upstream. Any incident will create serious delays. Drivers' level of comfort becomes poor. This is a common standard in larger urban areas, where some roadway congestion is inevitable.*

Clearly, the average daily traffic capacity of West 20th Street far exceeds both today's actual traffic demand and any reasonable forecast of future demand. For that reason, reducing the cross section west of Carey Avenue to two lanes (from three) would have no significant effect on access or circulation in the study area.

Implementation Considerations

- East of the study area, W. 20th Avenue currently provides three lanes of westbound traffic.
- W. 20th Avenue drops from three lanes to two lanes west of Synder Avenue.
- An earlier transition to two lanes could occur at Carey Avenue, where the north lane could become a right-turn-only lane onto northbound Carey.
- West of the railroad tracks, the northbound lane would remain a right-turn-only lane onto northbound Synder.
- The change to diagonal parking, as proposed on the north side of the street, would therefore occur for 4.5 blocks between Carey Avenue and the railroad tracks.
- As previously discussed, adding a short left-turn-only bay from W. 20th onto southbound Pioneer Avenue, while not critical, could be provided at the expense of one or two parallel parking spaces on the south side of 20th.
- Providing a turn bay would also require removal of the existing curb extension on the southeast corner of the intersection.

West 20th Street – Parking Considerations

To fit diagonal parking onto W. 20th Street, the desired minimum street width would be 51'. This retrofit would accommodate the following, as graphically depicted in Figure 16, below.

- remove one travel lane
- add 45° diagonal parking to north side of street (22' min. width)
- retain two through lanes (11' each)
- retain parallel parking on the south side of the street (7' min. width)

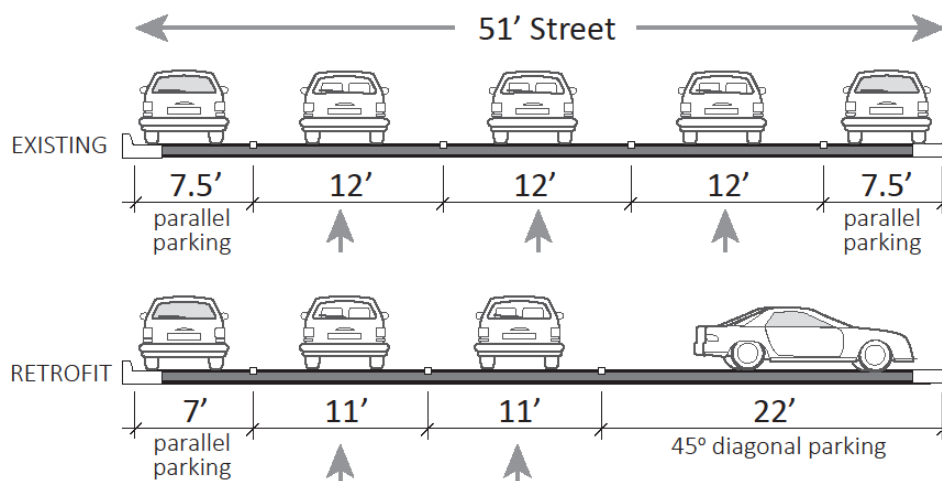


Figure 16. Proposed Modifications to 51' Street Cross-Section

Parking quantities along W. 20th Street are summarized block-by-block in Figure 17, below, which compares existing conditions with the proposed restriping retrofit. Plan view layouts are illustrated on aerial photography in the accompanying Figure 12 (parallel parking) and Figure 13 (diagonal parking reconfiguration).

Figure 17. Impact to Parking Quantities along W. 20th Street

| Block | Street Width* | EXISTING # SPACES | | PROPOSED # SPACES | | |
|--------------------------|---------------|-------------------|------------------|-------------------|------------------|------------|
| | | Parallel N. Side | Parallel S. Side | Diagonal N. Side | Parallel S. Side | Net Gain |
| Railroad to Bent | 52' | 6 | 5 | 9 | 5 | +3 |
| Bent to O'Neil | 50' | 11 | 7 | 21 | 7 | +10 |
| O'Neil to Thomes | 56' | 8 | 2 | 12 | 2 | +4 |
| Thomes to Pioneer | 51' | 4 | (Sheriff only) | 7 | (Sheriff only) | +3 |
| Pioneer to Carey | 50.5' | 8 | 8 | 15 | 8** | +7 |
| TOTAL | | 37 spaces | 22 spaces | 64 spaces | 22 spaces | +27 |

* Street widths are based upon "As-Built" plans for Reconstruction of 20th Street, prepared 8/26/82

** Parking quantity may be reduced by 1-2 spaces if desired to provide left-turn-only bay onto Pioneer Ave

Assumptions

- Existing parallel parking would remain as-is on the south side of W. 20th Street.
- Parking counts do not include restricted parking for the Sheriff's Department, as found on the south side of the street for the entire block from Thomes to Pioneer.
- The existing no parking zone for the bus stop on the north side of street is assumed to be 80' in length.
- Diagonal parking would be implemented in conjunction with curb extensions at corners. Configuration of the curb bulbs may change from what is shown schematically in Figure 5 depending on the decision to provide parallel or diagonal parking on the intersecting street(s).
- All curb extensions would allow for sight triangles and parking setbacks from the proposed new edge of the motor vehicle travelway.

Implementation Considerations

Two blocks of W. 20th Street are slightly less than the desired 51' street width (see Figure 9). For the blocks from Bent to O'Neil and Pioneer to Carey, design options could include:

1. Implement 45° angled parking on the north side of the street with parallel parking on the south side. Narrow the travel and/or parking lanes to fit constrained condition. Results in **51 spaces total** for these two blocks.

2. Remove parallel on-street parking along the south side of these two blocks, which would result in a loss of 15 spaces. Results in **36 spaces total** for these two blocks.
3. Implement 40° angled parking (instead of 45° typical) and retain parallel parking on the south side. Results in **47 spaces total** for these two blocks.

Figure 18, below, graphically compares potential street width allocations for 45° vs. 40° angled parking. See also accompanying plan view layouts in Figure 19-Special Considerations.

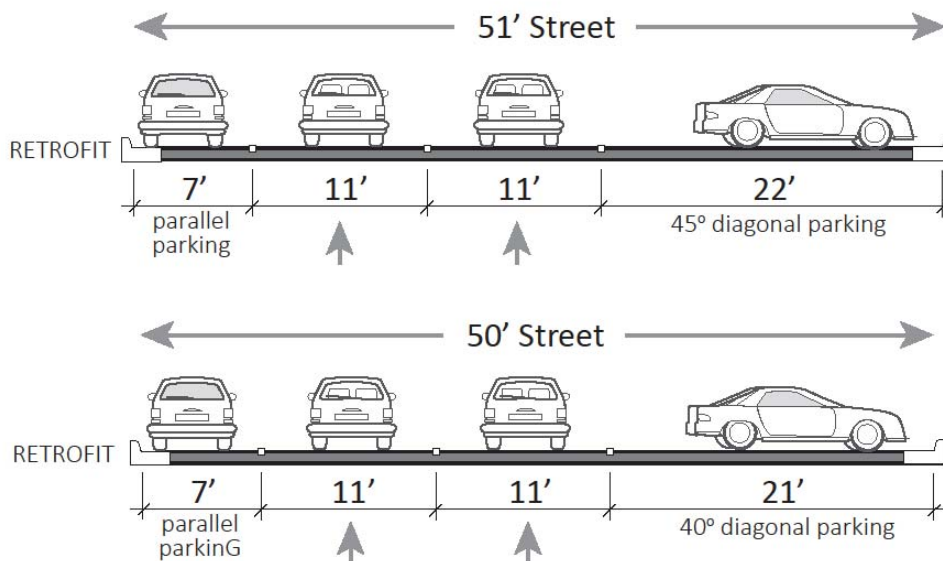


Figure 18. 45° Angled Parking vs. 40° Angled Parking

Implementation of diagonal parking along W. 20th Street would follow principles of context-sensitive design for retrofitting an existing urban street, including:

- Shifting from parallel parking to diagonal parking would create a better walking environment – greater sidewalk separation from travel lanes, increased pedestrian visibility on curb extensions at street corners, shorter crosswalks.
- Intended uses to be served by the additional spaces provided by a diagonal parking configuration are all located on the north side of the street – the Municipal Center, Civic Center, Civic Center Commons.
- Providing 40° angled parking could be an innovative solution for blocks with restricted street width – requires less parking street width and a narrower receiving lane.
- No definitive national standards exist for curb parking – engineering judgment should reflect local context-sensitive needs.
- Streets and parking lanes can be narrower than typical municipal code provisions – as demonstrated in other Front Range communities, including innovative parking configurations on College Avenue in Fort Collins and Walnut Street in Boulder.



**CLOSURE OF 21ST
AND EXPANSION OF PARK:**

- 21 max. spaces on 21st**
- 7 existing off-street**
- +9 spaces on Bent**
- +5 spaces on O'Neil**
- +20 spaces on alley (90° angle)**
- +6 net gain**

45° ANGLED PARKING
WITH PARALLEL PARKING ON SOUTH SIDE:
28 spaces in Bent-O'Neil block
23 spaces in Pioneer-Carey block
51 total

40° ANGLED PARKING
INSTEAD OF 45° ANGLED PARKING:
-2 spaces in Bent-O'Neil block
-2 spaces in Pioneer-Carey block
47 total

45° ANGLED PARKING
AND REMOVING PARALLEL ON SOUTH SIDE:
-7 spaces in Bent-O'Neil block
-8 spaces in Pioneer-Carey block
36 total