Overview:
The existing temporary parking lot serving the Shipley Nature Center in Central Park has been in place since 2005 in essentially its current configuration. Funding has been identified to provide a more permanent pavement surface and consider any access modifications that may be needed to better serve the parking lot and Shipley Nature Center patrons. With the recent completion of the Senior Center and the associated access driveway, additional access alternatives are potentially available. This analysis reviews the overall use of the parking (type of vehicle, parking demand, hours), circulation needs and the access options available.

Use:
Generally, the parking lot is used by visitors to the Shipley Nature Center and staff/volunteers working at the Center. Typically, the parking lot sees demand varying from just a few passenger cars on low demand days and up to 20 passenger vehicles in the parking lot during peak use times. There is a local service that also brings school-aged children to the nature center using a bus. Only one bus typically accesses the parking lot at a time. The buses that access the lot are typically 35-45 foot school buses. These vehicles typically have a turning radius (outside) of 42 feet, which means they would need an 84 foot wide area to make a complete u-turn in a single turn (versus a 2 or 3 point turn). Passenger vehicles negotiating a 90 degree layout parking lot generally need about 24 feet in aisle width for maneuvering. City Zoning Code requires as 26 foot wide circulation aisle for maneuvering. The parking lot would be assumed to be available for parking during normal park hours of 5 am to 10 pm daily.

Parking Lot Layout:
The current parking lot does not include specific marked parking stalls due to the surface material. As a paved parking lot, staff has developed a basic layout that would provide 40 standard parking stalls and 2 disabled parking stalls in a 64 foot wide rectangular layout. At the south end of the parking lot, a 25 foot by 80 foot maneuvering area is provided to allow a bus to turn around (depending on the access and circulation configuration). When buses are within the parking lot, the total number of available passenger car parking spaces is reduced. Staff would
propose designating a specific area in the lot for bus parking to accommodate a single bus. Staff included minimal parking lot lighting in the design, since the lot would be open to the public after dark (based on the 10 pm Central Parking closure time).

**Access:**
The current access to the parking lot is an uncontrolled driveway to the southbound lanes of Goldenwest Street. Vehicles may only make a right turn entry or exit to the lot due to the raised, landscaped median in the roadway. The driveway to the parking lot is 28 feet wide. Visibility of the driveway for approaching motorists wishing to enter the driveway is limited. The City has installed signs at the driveway and in advance of the driveway for motorists approaching from the north to help highlight the location. Motorists exiting the driveway are afforded a generally unobstructed view of on-coming traffic from the north. The posted speed limit on Goldenwest Street is 50 mph and it is common to see vehicles travelling in excess of this speed. This can be intimidating to some motorists, but is generally a common condition to negotiate with several driveways associated with Central Park, whom also are having to negotiate the same conditions (e.g. Sports Complex driveways – 2, Frisbee golf lot driveways – 2, equestrian center driveway). Staff has reviewed the reported accident history in the area since 2005, and found no reported accidents associated with the use of the current Shipley Parking Lot access.

An additional or alternative access point can be developed to access the existing Senior Center driveway. That driveway is controlled by a traffic signal at Goldenwest Street and can be accessed from either travel direction on Goldenwest or from the Library access road side of the intersection. The following list presents a few of the various options:

**Connection:**
Connecting the Shipley parking lot to the Senior Center driveway requires construction of a driveway on the south side of the existing lot extending to the Senior Center driveway. Due to the roughly 9 foot difference in elevation between the two, the access will have an approximate grade of 7% (7 ft elevation change over 100 ft). The driveway must cross the existing pedestrian path from Goldenwest down to the Senior Center. That pedestrian crossing must be designed to be ADA compliant. Once the driveway reaches the Senior Center driveway a standard connection would be made with radius corners.

The current configuration of the Senior Center driveway includes a raised, landscaped median. On the inbound side of the driveway, the pavement is 14 feet wide. The median is also 14 feet wide and the exiting side of the driveway has 24 feet of pavement. The two sides of the driveway have a difference in elevation of 1 foot with the entry side higher than the exit side. This is a consideration when evaluating the potential to open the median to provide full ingress and egress to the parking lot from the Senior Center driveway.

**Operational Alternatives:**
Three operational alternatives have been identified:

- Single, two-way driveway at current location off of Goldenwest (Exhibit 1)
- One way entrance driveway from the Senior Center driveway with one way exit to Goldenwest (Exhibit 2)
• Two way driveway from Senior Center Driveway with opening in driveway median, retain Goldenwest driveway for exit (Exhibit 3)

Each configuration is reviewed in detail in the following sections.

**Alternative 1: Single, uncontrolled two-way driveway to Goldenwest Street with restricted turns in and out.**
This alternative is the same as the existing parking lot access configuration and parking lot layout with more formalized marking of parking stalls and bus areas. One of the disadvantages of the current access is that it has very restricted access with entering only allowed from southbound Goldenwest as a right turn and exits must also turn right to southbound Goldenwest. Generally, passenger vehicles approaching from or exiting to the northbound lanes of Goldenwest will have to make u-turns at nearby intersections (both with traffic signals). Vehicles are also required to make the entry and exit maneuvers from and to a generally busy arterial street with traffic speeds routinely at 50 mph (posted speed) or higher. Bus traffic is generally aware of the restricted access and plan their routes to approach from the correct direction without having to make u-turns. Exits to Goldenwest Street can require some patience to wait for an appropriate gap in traffic and many motorists can be intimidated by making both entry and exit maneuvers from a major arterial. As mentioned earlier, there are several other driveways in the area where motorists must make similar maneuvers, so it is not uncommon. Despite the prevailing speeds and volumes on Goldenwest, staff has determined that the existing driveway for the Shipley parking lot is a safe and reasonable access alternative based on a review of the conditions (sight distance, operations) and the lack of any reported accidents during the last 10+ years of operation of the existing lot. This configuration requires the provision of a suitable area for buses to be able to turn around within the parking lot and return to the exit.

Costs: Staff has developed a preliminary cost estimate for construction of the Alternative 1 parking lot of $255,000.

**Alternative 2: Retain existing driveway, construct connection to Senior Center driveway with use limited to 1 one entry traffic and all exits using existing configuration.**
Alternative 2 builds onto Alternative 1 by adding a driveway connection up to the Senior Center driveway. The driveway would serve as a one-way driveway and provide an option for motorists to enter using the signal controlled entrance from Goldenwest at the Senior Center driveway. To reduce costs and minimize impacts to the existing landscaped median in the Senior Center driveway, staff considered the option of building the driveway without modifying the median. However, the driveway areas are too narrow to enable a bus to use this configuration as an exit. There are no suitable locations where a bus could make a u-turn within the driveway to be able to exit using the signal at the Senior Center driveway. Staff then considered the benefits of allowing motorists and buses to enter through the signal, making the connection a one-way driveway, while retaining the exits to Goldenwest Street at the existing, uncontrolled location. With that configuration, we could also retain potential entries for motorists through the existing driveway location.
While somewhat more convenient for people arriving at the parking lot, it only addresses half of the concerns expressed by some regarding the existing, uncontrolled and limited access driveway. Motorists would still be required to make right turn onto Goldenwest when exiting the parking lot. As with Alternative 1, staff believes that this configuration would still be a safe and functional means of providing access to the Shipley parking lot while adding some convenience for people arriving from northbound Goldenwest.
We also must acknowledge the possibility that motorists (passenger cars) may choose to exit out the one-way driveway to the Senior Center driveway, turn right and make a u-turn at the west end of the driveway. It is possible to consider allowing this alternative. It would allow motorists the opportunity to use the traffic signal for both entry and exit, accessing both directions of travel on Goldenwest.

Costs: The preliminary cost estimate to construction this alternative is $330,000.

**Alternative 3: Full access connection to the Senior Center driveway with a median modification to allow all turn into and out of the driveway.**

Alternative 3 includes a modification of the median in the Senior Center driveway to accommodate exit and entry turns into the connection to the Shipley parking lot. This would allow both motorists and buses full use of the Senior Center driveway and the traffic signal controls at Goldenwest Street. With the alternative, buses wishing to enter and exit via the Senior Center driveway would need to turn around within the parking lot. This requires a turnaround area similar to that provided with Alternative 1.

One challenge with removing a section of the median is that when the Senior Center driveway was constructed, the two sides of the driveway were not build at the same elevation, with one side about 12 inches higher than the other. This will result in a fairly large, but acceptable slope as motorists cross from one side of the driveway to the other (about 7% grade). The existing median landscaping palette was also not designed with visibility in mind and may result in restricted visibility of traffic exiting the Senior Center from the Shipley driveway. The current growth does not inhibit visibility in any way and, as plants mature, they may still remain low enough to maintain clear sight lines. It is important to acknowledge that while staff believes that both the conditions at the existing driveway and the accident history would indicate that it is a perfectly safe means of ingress and egress for the parking lot, the traffic signal does offer the advantage of clear right-of-way assignment for all motorists. In terms of overall traffic safety, this alternative clearly provides the highest level of control and reduced accident potential.

Costs: The preliminary construction cost estimate for Alternative 3 is $343,000.

**Recommendations:**

From a technical perspective, each of the alternatives appears to meet basic construction feasibility and all are functional for traffic circulation and access. Each alternative offers some advantages ranging from cost effectiveness to improved convenience. The Capital Improvement Program currently being proposed for the Fiscal Year 2017/18 contains funding for the Shipley Parking lot that includes the existing $200,000 allocated to the project, plus an additional $410,000 for a total of $610,000. All three of the identified alternatives appear to fit comfortably within this proposed budget. Should the additional appropriation of $410,000 not be approved by the City Council, the current available funds of $200,000 do not appear to be sufficient to pursue any of the alternatives.

This project is difficult to assess from a cost effectiveness perspective. The same basic parking supply is provided with each alternative resulting in costs per parking stall of $6,000 to $8,000. The costs are slightly higher than a typical surface parking lot construction ($4-5,000), but the layout of the parking lot and provisions for bus parking and turning make it inherently less efficient in terms of space use. A lot of this size would
generally be able to accommodate 55 passenger vehicles, which would reduce the cost per space to $4500-$6,200 – all within a reasonable construction cost range.

Selecting one alternative over another simply comes down to weighing three prime factors. First, is the overall cost and the potential desire to spend less on this project to have additional funds available for other projects. The $88,000 cost difference between the high and low projects, is not large by some standards, but certainly could be used for some significant improvements elsewhere. Second is convenience and, to a lesser degree, traffic safety. Since all access alternatives have been determined to be adequate and safe from a traffic perspective, it is a matter of weighing the desire to provide a higher level of overall traffic control and reduced accident potential associated with use of the Senior Center driveway and traffic signal. Lastly, there is an aesthetic element that could be considered. Construction of the driveway connection to the Senior Center driveway will disturb some of the natural landscape in the area and will be visible. For Alternative 3, modifications to the landscaped median would also remove vegetation and disrupt the aesthetics of the current median. From an engineering perspective, there is no clear superior alternative and selection of the preferred plan will depend on the degree of importance of each of these elements.