



6. INFRASTRUCTURE AND UTILITIES

This chapter describes the current conditions of the infrastructure network that serves the planning area, including the water supply and distribution system; the sanitary sewer system; and the storm drainage system.

6.1 Water Supply and Distribution System

The planning area is in the main aqueduct zone for the City of Santa Rosa, which has a total capacity of 24.6 million gallons (MG) with a surplus of 1.4 MG.¹ The City mains are supplied from the 36” Sonoma County Water Agency (SCWA) Aqueduct at various locations. The Aqueduct system runs generally both north-south and east-west through the City, including within the planning area.

Within the planning area, as shown on Figure 6.1, most residential neighborhoods are served from 6” to 10” mains. A majority of the water distribution system in the area is supplied by a network of 12” lines running east west and connected in the north south direction. The planning area is all located within one pressure zone.

Fire demand will vary depending on proposed type of construction and overall square footage of buildings, per appendix B of the Fire Code. The existing fire storage within this zone is 1.05 MG¹ which would equate to 4,000 gallons per minute (gpm) for over 4 hours. From a storage perspective, this meets the requirement for any size building per Appendix B of the Fire Code. The elevation of the planning area, along with the interconnected 12” water mains, is favorable to high pressures and flows for fire flows. There are currently no buildings in the planning area needing additional fire flows; however, buildings over 80 feet tall may need to augment flows to upper floors with pumps.

The 2015 Urban Water Master Plan and 2014 Final Water Master Plan Update both call for increased Recycled water use city wide for irrigation use in order to reduce the amount of potable water needed. While there are currently no active recycled water lines in the planning area, there is an 18” urban re-use water main along the north side of Santa Rosa Creek from Santa Rosa Avenue to Pierson Street. Ultimately this would connect to the functioning system fed from the recycled water pond near the Utilities Field Operation building on Stony Point Road. The easterly limits of the functioning system is currently in Stony Point Road. There are currently no Capital Improvement Projects scheduled to complete this connection before 2025.

¹ 2014 City of Santa Rosa Water Master Plan Update, Table 5-4.

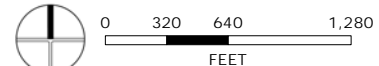
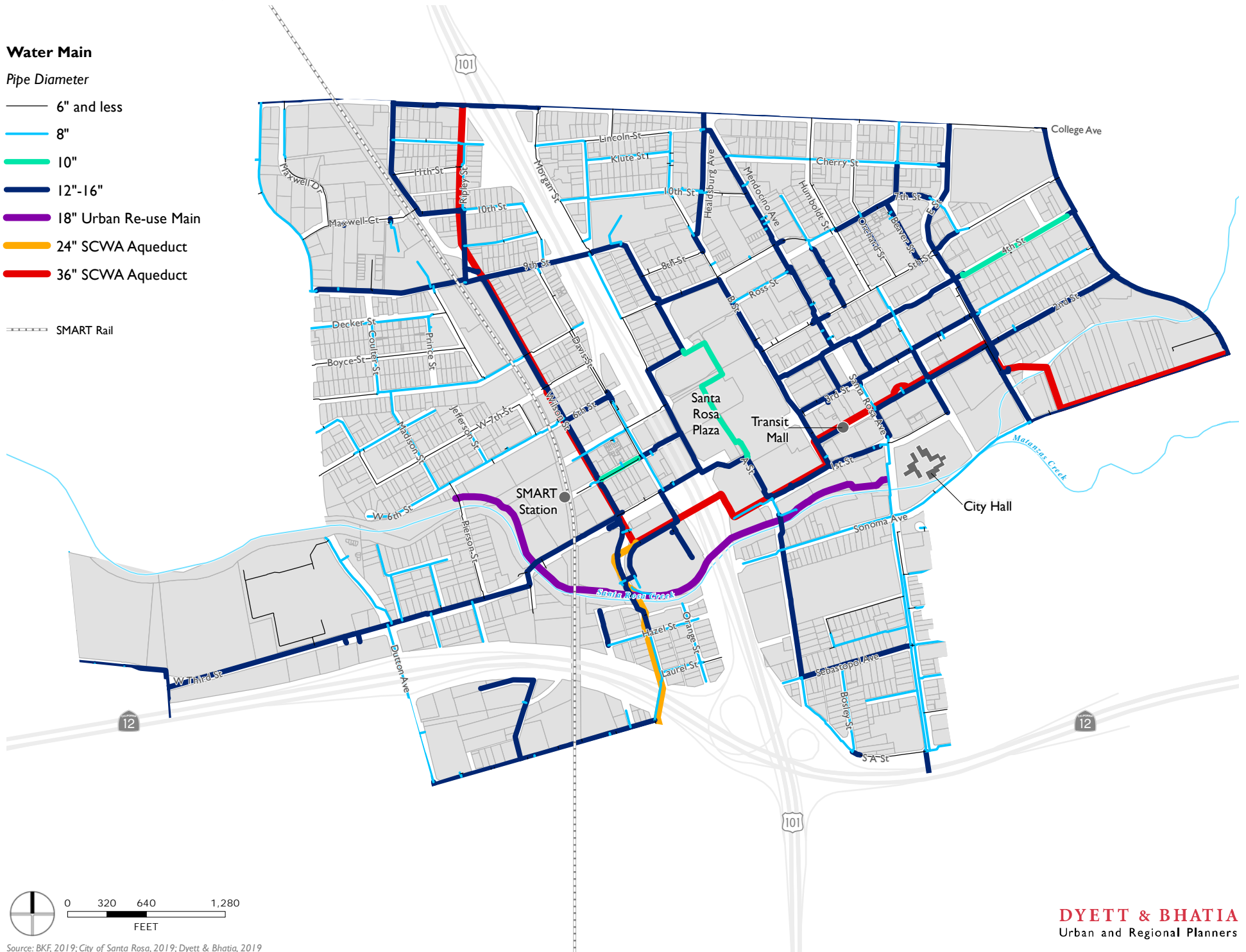
Figure 6.1 Water Supply and Distribution Network

Water Main

Pipe Diameter

- 6" and less
- 8"
- 10"
- 12"-16"
- 18" Urban Re-use Main
- 24" SCWA Aqueduct
- 36" SCWA Aqueduct

--- SMART Rail



Source: BKF, 2019; City of Santa Rosa, 2019; Dyett & Bhatia, 2019

6.2 Sanitary Sewer System

There are five Sewer Trunk Areas and three Trunk Sewer Lines (see Figure 6.2) and a network of gravity mains ranging in material type, age, and size (from 6” to 12”) within the planning area. A description of these facilities is provided below. Sewer laterals are used to connect customers to these lines. Laterals are typically not allowed to connect to trunk mains, so in certain locations, there are trunk lines and sewer mains within the same street.

The Sanitary Sewer Master Plan Update (October 2014) currently shows no trunks exceeding capacity within the planning area. The Asset Management section of Santa Rosa Water is evaluating the need to replace portions of the Crosstown Trunk line, which may occur in the next five to ten years. No other Capital projects are currently scheduled within the planning area.

Old Town Sewer Trunk Area – This area has a tributary area within the planning area, south of the Downtown Trunk Area and north of Santa Rosa Creek. All sewer in this area is collected by mains and then connected to the trunk (outside of the planning area).

Crosstown Sewer Trunk Area & Main – This area collects waste between Santa Rosa Creek and the southern boundary of the planning area. The trunk main is located mostly in Sonoma Avenue on the east side of Highway 101 and West Third Street on the west side of Highway 101 and connect to the Llano Trunk line west of Stony Point Road (outside the planning area). The trunk pipe is constructed mostly from reinforced concrete pipe and the size varies from 33” to 36” east to west.

Benton Sewer Trunk Area & Main – This area collects waste in the area just south of College Avenue along the entire planning area. The trunk main is located in College Avenue between Glenn Street and Link Lane and connects to the Old Town Trunk Line at West College and Link Lane (outside the planning area). The trunk pipe is constructed mostly from plastic pipe and is 18”.

Downtown trunk line & Main – This area collects waste in the area north of the Old Town and Crosstown Trunk areas and south of the Benton Sewer Trunk Area. Moving east to west, it occupies Second Street, E Street, Third Street, B Street, Seventh Street, A Street and Ninth Street. It connects to the Old Town Trunk line at the intersection of Ninth Street and Link Lane (outside the planning area). The trunk pipe is constructed of plastic, fiberglass reinforced thermosetting plastic, asbestos concrete, and vitrified clay pipe ranging in size from 18”-24” east to west.

Airport Trunk Area – This area has a tributary area within the planning area, south and west of the Crosstown Trunk Area, north of Sebastopol Road and east of Dutton Avenue. All sewer in this area is collected by mains and then connected to the trunk (outside the planning area).

Treatment Plant – The sewer model of the Santa Rosa 2010 population shows 16.9 million gallons per day (MGD). The projected urban growth boundary buildout (population in 2035) projects an additional 2.6 MGD resulting in a total of 19.4 MGD.² The total 2035 projected sewer generation from outside community contributors is 4.6 MGD³ resulting in a total 2035 projected sewer flow of 24 MGD to be treated by the Laguna Treatment Plant. The capacity of the plant is listed at 54 MGD.⁴

² 2014 City of Santa Rosa Sanitary Sewer System Master Plan Update, Table 3-2.

³ 2014 City of Santa Rosa Sanitary Sewer System Master Plan Update, Table 3-3.

⁴ 2014 City of Santa Rosa Sanitary Sewer System Master Plan Update, Section 2.3.1.

Therefore, capacity is sufficient to accommodate growth planned in the 2007 Specific Plan through 2035.

Figure 6.2 Sewer System

Sewer Main

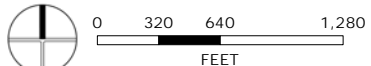
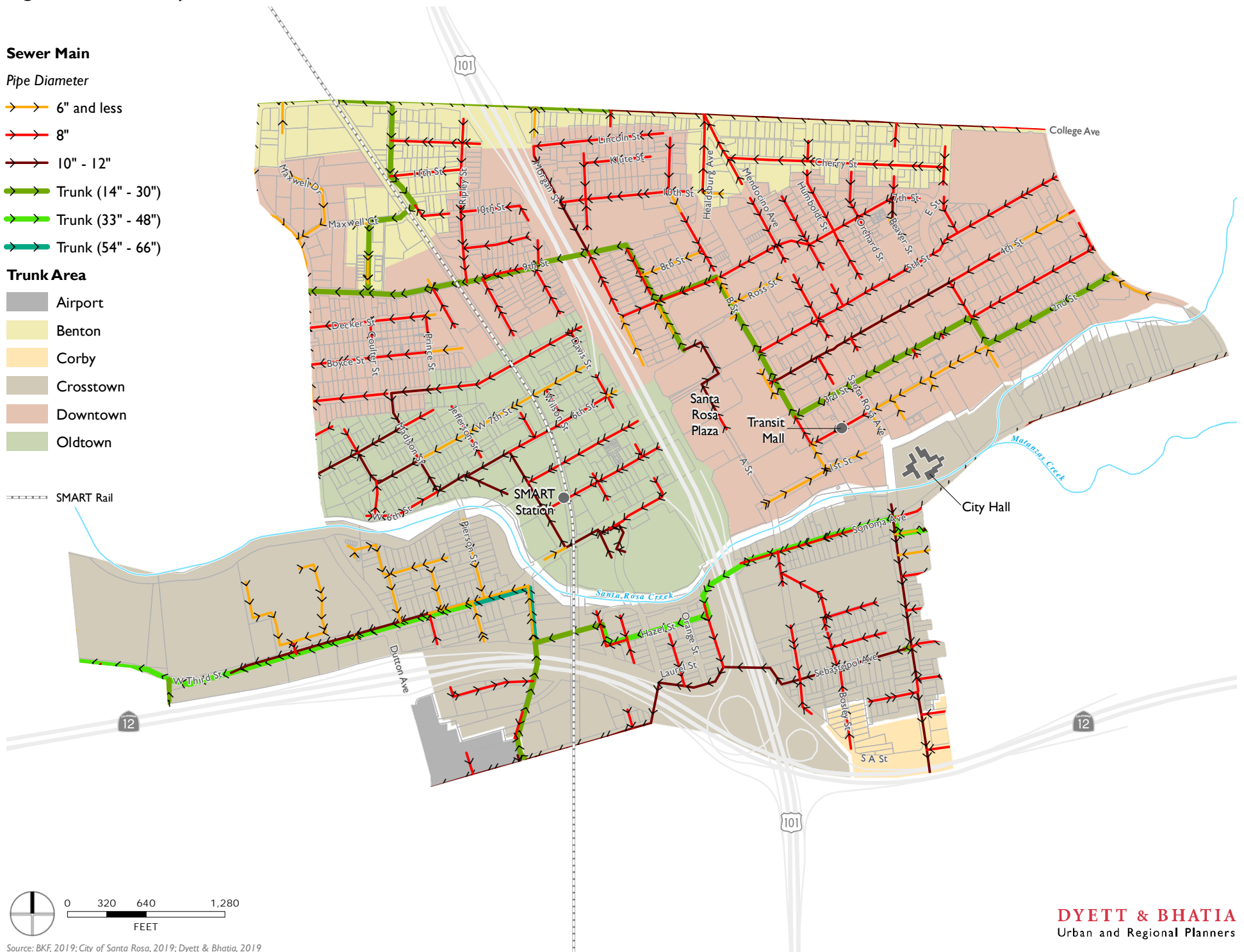
Pipe Diameter

- 6" and less
- 8"
- 10" - 12"
- Trunk (14" - 30")
- Trunk (33" - 48")
- Trunk (54" - 66")

Trunk Area

- Airport
- Benton
- Corby
- Crosstown
- Downtown
- Oldtown

--- SMART Rail



Source: BKF, 2019; City of Santa Rosa, 2019; Dyett & Bhatia, 2019

6.3 Storm Drain System

The main drainage conduit within the planning area is the Santa Rosa Creek. Santa Rosa Creek runs east to west through the planning area, going under City Hall in a 108” Box Culvert from E Street to Santa Rosa Avenue where it enters the Prince Memorial Greenway, a revitalized area of the creek that removed the trapezoidal, concrete lined channel and restored it to a natural condition with vegetation, walkways and reinforced earthen banks. Matanzas Creek connects to Santa Rosa Creek under City Hall. Long term planning currently calls for relocation of the City offices, removal of the 108” box culvert and subsequent restoration of the confluence of these creeks to a natural condition, including vegetation, bank stabilization, bike paths and community areas.

Currently, most of the stormwater that falls in the planning area is collected in street gutters and collected in underground conduits and discharged to Santa Rosa Creek. These conduits are primarily 18” or smaller and eventually outfall to Santa Rosa Creek, or tie into one of the larger storm drains that eventually outfall to Santa Rosa Creek. Table 6.1 shows a list of storm drain outfalls to Santa Rosa Creek. The outfalls and their tributary areas are shown on Figure 6.3.

Flooding in the downtown area is mitigated by upstream diversions and detention basins (Spring Lake Park) that throttle the amount of flow allowed downtown from the upper reaches of the creek. The planning area is located in Reach 4 of the Santa Rosa Creek as identified in the 2013 Citywide Creek Master Plan.

A majority of the planning area is already developed, resulting in a high runoff factor. However, current regulations require that new development and redevelopment provide on-site treatment and

hydromodification features as well as enhancements to areas surrounding existing waterways and habitat restoration. As such, as development/redevelopment occurs within the planning area, projects will be required to implement on-site stormwater treatments and hydromodifications which should result in a lower runoff factor for the area, thereby reducing peak runoffs.

Flooding often occurs at the intersection of Roberts Avenue and Sebastopol Road, as this area is not currently served by existing storm drain piping that connects to an adequate downstream drainage system.⁵ However, no Capital Improvement projects are currently planned for Storm drain in the planning area before 2025.

Table 6.1: Storm Drain Outfalls to Santa Rosa Creek

| <i>North Side Creek Outfalls</i> | <i>South Side Creek Outfalls</i> |
|--|----------------------------------|
| North Dutton Outfall (66") | Santa Rosa Avenue (48") |
| Pierson outfall/6 th Street (48") | |
| 5 th Street outfall (30") | |
| 4 th Street outfall (24") | |
| B Street Outfall (42" & 66") | |
| E Street Outfall (24") | |

⁵ 2007 Downtown Station Area Specific Plan, page 7-5.

Figure 6.3 Storm Drain System

Storm Drain

Width

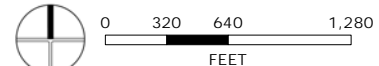
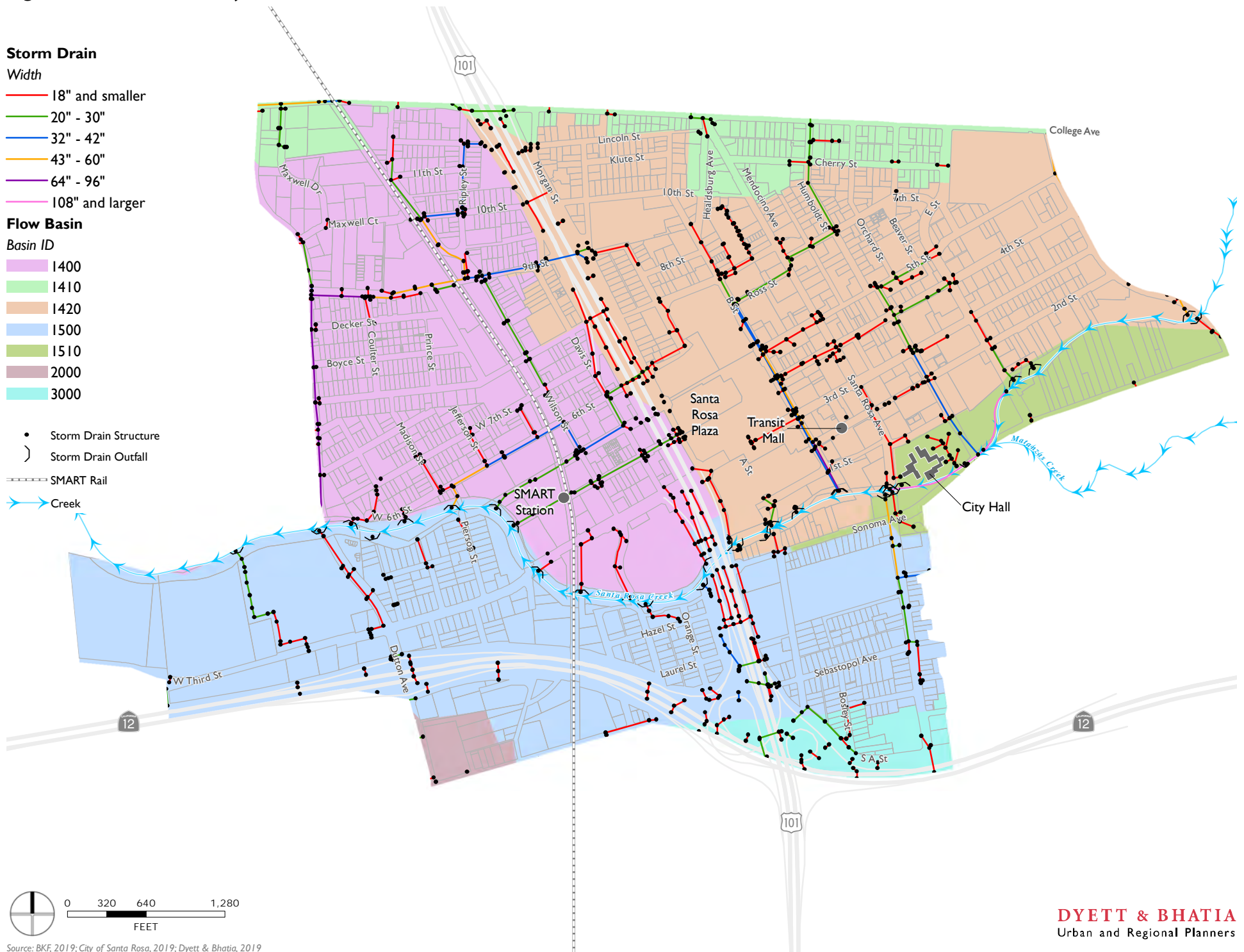
- 18" and smaller
- 20" - 30"
- 32" - 42"
- 43" - 60"
- 64" - 96"
- 108" and larger

Flow Basin

Basin ID

- 1400
- 1410
- 1420
- 1500
- 1510
- 2000
- 3000

- Storm Drain Structure
-) Storm Drain Outfall
- SMART Rail
- Creek



Source: BKF, 2019; City of Santa Rosa, 2019; Dyett & Bhatia, 2019

6.4 Key Findings and Planning Considerations

- Future development is likely to take place largely on previously developed sites served by existing infrastructure. Several large parcels in the Imwalle Gardens area represent the only opportunity sites not currently served by existing infrastructure. Development on vacant parcels in this area would require connections to existing infrastructure in West Third Street.
- The only major capital improvement project programmed in the planning area through 2025 is the Crosstown Trunk line replacement project. An infrastructure and financing plan will be prepared to assess and document future needs once the City Council has approved the preferred alternative at the end of Phase 2 of the DSASP Update.
- While the elevation of the planning area and the existing network of the interconnected 12” water mains allows for meeting fire flow requirements under current conditions and there are currently no buildings in the planning area needing additional fire flows, new taller buildings may need to augment fire flows to upper floors with pumps.
- The intersection of Sebastopol Road and Roberts Avenue in the southwestern portion of the planning area often floods. As development and redevelopment occurs, regulations will require that projects implement on-site stormwater treatments and hydromodifications, which should result in a lower runoff factor for the area and reduced peak runoffs. The need for improvements to the storm drain system in this area will be assessed in developing the infrastructure and financing plan at the end of Phase 2 of the DSASP Update.