



COUNCIL AGENDA: 2/26/2019
ITEM: 3.3
FILE NO: 18-1936

Memorandum

TO: HONORABLE MAYOR AND
CITY COUNCIL

FROM: Toni J. Taber, CMC
City Clerk

SUBJECT: SEE BELOW

DATE: February 26, 2019

SUBJECT: Status Report on Deferred Maintenance and Infrastructure Backlog.

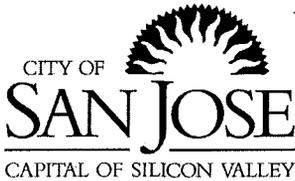
RECOMMENDATION:

As recommended by the Transportation & Environment Committee on February 4, 2019, accept the status report on the City's Deferred Maintenance and Infrastructure Backlog.

CEQA: Not a Project, File No. PP17-009, Staff Reports, Assessments, Annual Reports, and Informational Memos that involve no approvals of any City action. (Public Works)

[Transportation & Environment Committee referral 2/4/19 - Item d(1)]

DEFERRED TO 3/12/19 PER ADMINISTRATION



Memorandum

TO: TRANSPORTATION AND ENVIRONMENT COMMITTEE

FROM: Matt Cano

SUBJECT: STATUS REPORT ON DEFERRED MAINTENANCE AND INFRASTRUCTURE BACKLOG

DATE: January 28, 2019

Approved

Date

1-28-19

RECOMMENDATION

- 1) Accept the status report on the City's Deferred Maintenance and Infrastructure Backlog.
- 2) Refer this report to the full City Council on the February 26, 2019, City Council Agenda.

OUTCOME

This report is intended to facilitate Committee discussion of the City's Deferred Maintenance and Infrastructure Backlog needs within the context of the upcoming budget process.

EXECUTIVE SUMMARY

This staff report provides an update on the City's Deferred Maintenance and Infrastructure Backlog (DMIB), as well as discusses near-term strategies being employed in an effort to minimize certain further increases to the backlog.

Impacts of Measure T

In November 2018, San José voters approved Measure T, the Disaster Preparedness, Public Safety, and Infrastructure Bond Measure, which is estimated to provide \$650,000,000 for a wide variety of infrastructure needs. The likely investments in this bond measure that focus primarily on infrastructure backlog include, but are not limited to:

- \$300 million to repair an estimated 388 miles of local and neighborhood streets in the worst condition starting in 2020.
- \$20 million for the repair and replacement of several bridges on the deferred maintenance backlog.
- \$20 million to facilitate the conversion of streetlights and other outdoor lights at city facilities to LED.

- \$35 million to construct Storm System Conveyance & Flood Prevention Projects.

Of the above amounts, the \$300 million for street repair is guaranteed by the ballot measure and the remaining items are subject to future council approval. The result of these Measure T infrastructure investments, when fully implemented, will have a significant impact on decreasing the infrastructure backlog. Primarily with the investment of \$300 million for pavement from Measure T, the anticipated street backlog by 2028 is expected to be approximately \$600 million which is a reduction of approximately \$500 million from previous projections of \$1.1 billion in prior reports. This is a result of allowing other ongoing funding sources to be utilized for cost effective preventative maintenance and avoiding the further deterioration of many street segments.

Overall, the DMIB, including all anticipated Measure T funding for 2019, will total roughly \$1.5 billion in unfunded costs, with an additional \$86.9 million needed annually in order to maintain the City's infrastructure in a sustained functional condition.

Transportation Infrastructure continues to have the largest unfunded needs. This area, focusing on the City's street network, roadway lighting and right of way landscaping assets, has been successful in leveraging Federal, State and Regional funding to partially address the needs of the assets. Although the deferred maintenance backlog increased in 2018, California's gas tax increase known as Senate Bill 1 (SB1) withstood a repeal effort in the November 2018 election, and will continue to provide the City with an estimated \$17.5 million in annual pavement maintenance funds that will be programmed for use on the City's major streets in 2019. With resolution of the VTA 2016 Measure B lawsuit settlement and with the passage of Measure T by San José voters, the City's Pavement Maintenance Program will see a significant reduction in its infrastructure backlog over the next 10 years compared to previous projections.

Similar to the 2018 report, the Regional Wastewater Facility and Water Utility programs reported no unfunded needs at this time. The Sanitary Sewer Program annual funding needs are calculated based upon the results of a 2011 Sewer Condition Assessment Pilot and an analysis of capacity improvement projects needed to address existing deficiencies in the system. The ongoing unfunded need in the Sanitary Sewer Program has decreased due to greater amounts of ongoing funding that began in 2015-2016, and will continue to be evaluated during the development of the 2019-2020 Proposed Capital Budget.

Building Facilities inventory including the Convention Center and other City-owned Cultural Facilities (including community centers and re-use buildings) reported no change in ongoing unfunded needs. Public Works has devoted time and resources over the past few years to establish an assessment program to measure the ongoing needs at these facilities. This includes the Maintenance Oversight Program for the Convention Center and other Cultural Facilities and Life Cycle Cost Analysis Reports for all City-owned facilities.

The Parks, Recreation and Neighborhood Services Department (PRNS) continues to evaluate infrastructure backlog against baseline conditions established in 2013-2014. The baseline

estimates include annual depreciation of park facilities; staff then calculates the annual increase in infrastructure backlog cost by comparing the projected annual depreciation with actual expenditures on capital replacement and previously identified backlog items. Additional resources are likely needed to assist staff in evaluating building facilities to improve the accuracy of its data management systems.

The Airport continues to monitor and identify vertical and horizontal deferred maintenance backlog needs. The Department continued funding several one-time projects and completed additional deferred maintenance items within the Airport's 5-year Capital Improvement Program (CIP). Deferred maintenance projects that are not within the 5-year CIP have been identified, which total \$5.9 million excluding pavement items. The Airport updated the Airfield Pavement Condition report used to assess pavement condition and forecast priorities. Significant pavement projects are incorporated into the CIP while on-going pavement maintenance is accomplished each fiscal year.

BACKGROUND

In October 2007, the first comprehensive report on the City's Deferred Maintenance and Infrastructure backlog was presented to the Transportation and Environment Committee and then to the full City Council in a special Study Session. This report analyzed the unfunded infrastructure and ongoing maintenance needs over a 5-year period for 14 discrete programs in the City. The 2007 report identified a one-time unfunded need of \$915,000,000 and an ongoing unfunded need of \$45,000,000. The comprehensive report was updated in October 2008 as part of the Structural Deficit Elimination Plan efforts. The report has been updated annually since that time.

ANALYSIS

Staff has updated the 2018 backlog estimates to reflect more recent work and funds anticipated for inclusion into the 2020-2024 Proposed Capital Improvement Program (CIP). The current backlog of deferred needs is estimated at \$1.5 billion with an additional \$86.9 needed annually.

Based on these updates, the following table summarizes the current state of the City's Deferred Maintenance and Infrastructure backlog. It should be noted that the costs in the chart below represent staff's best estimate at this time. As described throughout the memorandum, further analysis and refinement of these estimates would be required before funding is requested to address specific unfunded needs. Additionally, Attachment A provides the breakdown of General Fund versus Capital Fund one time and ongoing needs.

Infrastructure Backlog (numbers in millions)

Program	One Time Backlog			Annual Ongoing Needs		
	2018	2019	Change	2018	2019	Change
Airport	\$5.9	\$5.9	0	NONE	NONE	0
Building Facilities (1)	\$154.5	\$171.5	\$17.0	\$18.9	\$18.9	0
Cultural Facilities Operated by Others (OCA)	\$2.7	\$7.6	\$4.8	TBD	\$1.5	\$1.5
Sports Facilities	TBD	TBD	TBD	TBD	TBD	TBD
Convention Center and Cultural Facilities (TSJ)	\$75.7	\$54.1	-\$21.6	TBD	TBD	TBD
Fleet	\$8.2	\$9.1	\$1.1	\$1.4	\$1.3	-\$0.1
Parks, Pools and Open Space (2)	\$177.2	\$201.4	\$24.2	\$32.5	\$33.4	\$0.9
Sanitary Sewer	TBD	TBD	\$0	\$1.5	\$3.6	\$2.1
Service Yards	\$26.1	\$21.6	-\$4.5	\$4.8	\$3.8	-\$1.0
Storm Sewer	\$223.5	\$180.0 (4)	-\$43.5	TBD	TBD	TBD
Information Technology (3)	\$21.2	\$21.6	\$0.4	\$0.3	\$0.4	\$0.1
Radio Communications	NONE	NONE	0	NONE	NONE	0
Transportation Infrastructure	\$696.7	\$876.1 (4)	\$179.4	\$52.6	\$23.9 (4)	-\$28.7
Regional Wastewater Facility	NONE	NONE	0	NONE	NONE	0
Water Utility	NONE	NONE	0	NONE	NONE	0
Total	\$1,391.7	\$1,549.0	\$157.4	\$111.9	\$86.9	-\$25.1

- (1) Annual Ongoing \$18,912,000 for Parks Buildings only, remaining facilities TBD.
- (2) The one time backlog number for playgrounds may significantly increase in future years as a result of the aging system as described further later on in this report
- (3) Information Technology needs within Departments not managed by the IT Department are not included in this estimate.
- (4) Measure T investments may include \$35M in Storm Sewer, \$30M in Transportation Infrastructure's streetlights and bridges, and \$300M in on-going pavement annualized over 10 years.

The Current Backlog of deferred needs column describes the lump sum funding, for which there is no approved funding source, needed to restore a given asset to a satisfactory and serviceable

condition rating. The Annual Ongoing Unfunded Needs column describes the additional funding needed to maintain the asset in satisfactory and serviceable condition or to establish a sinking fund for strategic asset maintenance or rehabilitation.

Below is a summary of the status and key changes from the prior year in each asset category. Included is information on the status of near-term actions that the City has taken or could take to reduce the Deferred Maintenance and Infrastructure backlog, along with any discussion of future opportunities relating to the asset category.

Airport

The Facility & Engineering and Planning & Development Divisions of the Airport Department are responsible for operating and maintaining building and pavement. These facilities include:

- 2 Runways, 4 parallel taxiways, 14 cross taxiways, aprons and service roads (Airport Operating Area)
- 1 Fire Department building (ARFF)
- 1 Police Department building (SJPD Airport Division)
- 6 Terminal Area Buildings (A-Plus, Terminals A and B, FIS, T/A Baggage Claim, Central Plant)
- 11 Miscellaneous support buildings
- Smaller support buildings for maintaining building structure only
- 2 Public Parking Garages
- 4 Surface Parking Lots

The Airport is funded by a combination of funding sources that may either be used for capital improvements or repayment of debt service for capital improvements: Federal Grants (FAA), Passenger Facility Charges (PFC), Customer Facility Charges (CFC), and General Airport Revenue. The availability of PFCs, CFCs and General Airport Revenues for new capital projects is limited by existing debt service on bond and commercial paper and FAA grants have been limited by Federal budgets.. The Airport tracks physical assets, horizontal and vertical, utilizing two computer based systems as well as specialized studies. For the pavement assets (horizontal), the Airport utilizes "MicroPaver" computer software for condition assessment and prioritization and Infor EAM is utilized for building condition assessments (vertical). Special studies and consultants are used to supplement these two programs as well as in-house resources.

The last major upgrade and improvements to the Airport campus was completed in June of 2010; these assets are requiring additional maintenance to continue operating at the established efficiency levels. Maintenance items are categorized, prioritized, and addressed within the Airport's 5-year CIP as funding permits. The deferred maintenance for building project costs is estimated to be \$5.9 million. The Airport continues to examine and monitor all facilities to refine the Airport's future budgetary needs to maintain these physical assets.

Additional structures outside the terminal zone are primarily used in support of aviation functions, such as parts storage and tenant maintenance activities. A special study Request for Proposal (RFP) will determine the best use of the property along the southeastern portion of the Airport and potentially plan for replacement through a private/public development partnership over the next 5 to 10 years. This planned study, along with the Airport's Master Plan, will identify existing facilities that will require replacement to maximize the land use and allow the second phase of the Terminal Area Improvement Program (TAIP Phase II) construction for expanded terminal facilities

The remaining deferred maintenance items are the horizontal surfaces (pavement). Critical areas that are maintained by the Airport include taxiways, runways, and aircraft parking areas within the Airport Operations Area (AOA) and the public right-of-way surfaces. The Airport maintains a Pavement Maintenance and Management program to prioritize, plan and track maintenance activities for the Air Operations Area (AOA). This program is an industry-accepted, best management practice for identifying pavement life and cost estimates for planning purposes. Typically, airports that serve commercial aircraft traffic have used various "cut-off" points, a critical Pavement Condition Index (PCI) value, at which a pavement section requires rehabilitation. Generally, a Critical PCI of 70 for runways, 60 for taxiways and aprons, and 55 for shoulders and roadways is accepted throughout the industry. Preventive maintenance activities such as crack and joint sealing and patching are recommended for pavements that have a PCI greater than the critical PCI identified.

Overall the pavement network at the Airport had an area weighted PCI value of 85 (on a scale of 0-100, 100 being zero maintenance required) based upon a study conducted in 2016. Since the study was performed, the Airport has received FAA AIP grants to improve the pavement areas and anticipate that support will continue to complete the most critical areas.

Building Facilities

The Facility Management Division of Public Works supports maintenance, operations, and capital improvements at over 400 City buildings and structures, comprising more than 5 million square feet. These buildings include:

- 36 Fire Department Buildings
- 3 Police Buildings
- 23 Libraries
- 50 Community Centers
- 251 Park Facility Buildings
- 3 City Hall Buildings
- 6 Cultural Facilities
- 7 Facilities Operated by Team San Jose (TSJ)
- 3 Sports Facilities
- Numerous Other Smaller Buildings

The conclusion of the decade of investment (2000-2010), which nearly doubled the square footage of the facility inventory, leads to the next half century where sustainability will be the focus. The major building systems and equipment within facilities constructed within the last 15 years are rapidly reaching their fully functioning serviceable lives. These facilities have been designed and constructed with technologically advanced and sophisticated equipment that has enhanced the user experience and increased functionality of the facilities, but has also increased long-term costs as well as increased maintenance frequencies to preserve the asset.

Compounding this advancement in asset complexity, previous budget deficits and shortfalls from sources generally used to fund capital maintenance activities have forced reductions that have left insufficient resources to meet the needs of the facilities for day-to-day maintenance. Even as a portion of this funding has been restored, the deferred work continues to increase, which can lead to infrastructure failures prior to the expected serviceable life.

The Facilities Management Division of Public Works utilizes Infor EAM, a sophisticated enterprise asset management program to track repair costs and frequency which help to derive expected end-of-life asset durations, and data collected from asset condition assessments. These assessments have historically been conducted through third party specialists at a cost. Additional funding will likely be requested over the next two years to complete a comprehensive assessment of all City-owned buildings and structures. Until such an analysis is completed, this report will use building assessments and estimates completed to date, and make use of other best available data.

The current backlog for deferred maintenance in building facilities is estimated at \$171 million, which includes approximately \$131 million for Parks Buildings. The remainder of the backlog needs are derived from a combination of the building assessment work completed to date by in-house staff and a small number of third party building assessments. A more robust estimate is anticipated once the city-wide building assessment study is completed by 2020.

Recognizing the need, the funding allocation for preventive maintenance activities in the Facilities Management Division has been increased in recent years. This is a very important program that provides proper maintenance of assets. The Facilities Management Division has developed a program wherein over 80% of preventive maintenance activities are completed as scheduled, greatly improved from the 38% completion rate in FY 2011-12. The focus of the program has been: 1) the completion of work items that address life safety needs, and 2) the preservation of assets. In the short term, this program will reduce the number of equipment failures as the preventive maintenance work will facilitate the ability of staff to identify and correct repairs prior to that equipment reaching the point of failure. Over the long term, the results of this funding will benefit the City as preventive maintenance results in the extension of the life of assets.

City Council approved the use of an energy service contract (ESCO) to complete energy efficiency projects. The conversion of 18,200 streetlights to LED lamps and adaptive controls

was completed in June 2015, and the installation of seven solar energy systems generating 1.3 MW of clean power was completed in June 2017. The HVAC system at the Shirakawa Community Center was also replaced in March 2018. The remaining project within the ESCO program is the replacement of the HVAC chiller system at the Museum of Art, which is scheduled to be completed in February 2019. Facility lighting replacement projects were identified as a part of the ESCO scope, though staff will administer the work internally to reduce costs.

Cultural Facilities Operated by Others

These facilities, totaling over 900,000 square feet, include those listed in the following table.

Cultural Facilities	Estimated Five-Year Rehabilitation Need
Children’s Discovery Museum	\$1,850,000
Tech Museum	\$6,150,000
History San Jose Facilities	\$800,000
Museum of Art	\$1,800,000
Hammer Theatre	\$1,400,000
Mexican Heritage Plaza	\$900,000
Total Budget Need	\$12,900,000
Cultural Facilities Capital Maintenance Reserve	\$3,100,000
Additional Anticipated Funding Through 2020-2024	\$2,250,000
Remaining Unfunded Need	\$7,550,000

*The current reserve level is estimated to fully fund nearly all planned projects through 2019-2020; a total of \$7.5 million would be needed to complete the projects identified in 2020-2021 through 2023-2024.

The current estimated rehabilitation need through FY 2023-24 has been recently updated to approximately \$12.9 million. This figure was developed through discussions with the Office of Cultural Affairs (OCA), which provides management oversight for the above-referenced facilities, the facility operators, and through the evaluation of condition assessment reports that provide information at a more detailed level than was previously available.

In FY 2014-15 the City Council approved an allocation of Transient Occupancy Tax (TOT) growth above the 2013-2014 levels toward capital replacement and maintenance at various cultural facilities including the San Jose Museum of Art, Tech Museum of Innovation, Hammer Theatre, History San Jose, School of Arts and Culture at Mexican Heritage Plaza, and Children’s

Discovery Museum. This funding stream has been an important tool to address the deferred maintenance and infrastructure backlog.

As part of the FY 2017-18 Adopted Budget, the City Council approved changes to Cultural Facilities Capital Maintenance Reserve funding, eliminating the allocation of annual Transient Occupancy Tax (TOT) growth above base 2013-2014 levels and instead committing \$450,000 annually. This ongoing set-aside, combined with the existing reserve of \$3.1 million is expected to fully fund all planned projects through 2019-2020, with future funding subject to reevaluation. The Cultural Facilities Capital Maintenance Reserve continues to be an important tool to address the deferred maintenance and infrastructure backlog, with \$3.7 million allocated for cultural facilities in 2018-2019, including the Children's Discovery Museum, Camera 3 Theater, Museum of Art, Hammer Theatre, Tech Museum of Innovation, History San Jose, and the School of Arts and Culture at Mexican Heritage Plaza.

In addition, the operators at the Mexican Heritage Plaza, the Tech Museum, and the Children's Discovery Museum are participating in a capital maintenance funding program. This program shifts a portion of their annual City subsidy into a separate account to specifically address minor capital funding needs.

Sports Facilities Operated by Others

San José Municipal Stadium was built in 1942 and is home to the minor league baseball team, the San José Giants. Solar4America Ice at San José (previously Sharks Ice) was built in 1994 and, in addition to serving as a practice facility for the Sharks, it is home to the San José State University hockey team and the San José Sharks junior teams. SAP Center opened in 1993 and is home to the San José Sharks professional hockey team. A comprehensive life cycle analysis of the SAP Center is currently being conducted that is jointly funded by the City and Sharks Sports Entertainment. The backlog for two of these facilities is currently under evaluation and as such is noted to be determined (TBD).

Sport Facilities	Backlog
Muni Stadium	TBD
Solar4America Ice at San José	TBD
SAP Center	TBD

Convention Center and Cultural Facilities Operated by Team San Jose

These facilities are operated by Team San Jose on the City's behalf and total approximately 1.4 million square feet, including the new areas added with the recent expansion of the Convention Center.

Facilities Operated by Team San Jose	Backlog
California Theater	\$2,520,000
Center for Performing Arts	\$30,595,000
Civic Auditorium	\$3,198,000
Montgomery Theater	\$1,460,000
Convention Center	\$11,247,000
South Hall	\$5,100,000
Total Backlog	\$54,120,000

While life cycle condition reports are still under review for all facilities, preliminary one-time deferred maintenance costs are estimated at \$54.1 million. The recent rise in Transient Occupancy Tax (TOT) proceeds allocated to the Convention and Cultural Affairs Fund (536), and the availability of special tax revenue from the Convention Center Facilities District Fund (791) for improvements at the Convention Center, has provided the City with significant resources to address the backlog. In 2018 the Convention Center exhibit hall lighting and ceiling upgrade project was completed at a total cost of approximately \$21 million. The rehabilitation of the Civic Auditorium HVAC system at a cost of \$5.5 million was also completed in 2018. The Convention Center restroom upgrades project is going to be completed in April 2019 at a cost of \$2.3 million. An evaluation of phased rehabilitation needed for the Center for the Performing Arts is under development. Staff anticipates the 2020-2024 Proposed Capital Improvement Program to outline a multi-year strategy to partially address the needs of this facility. The ongoing unfunded backlog for the Convention Center and Cultural Facilities is still under development.

Fleet

The City's Fleet Management Program provides preventive maintenance, repairs, statutory inspections, acquisition, disposal and fueling services for a fleet inventory consisting of 2,787 vehicles and equipment that support public safety, public health, and general government operations citywide.

These vehicles and equipment are categorized as follows:

Category	Qty.
Police Patrol	489
Fire Front Line	116
General Fleet	1,408
Off Road Fleet	271
Other Equipment	503
Total	2,787

This year's vehicle and equipment inventory increased by 35 assets or 1% from last year's total of 2,752. These increases occurred primarily in the Police Department programs and were substantially comprised of light duty vehicles. The City's fleet assets inventory will continue to "right-size" as the organization's overall service delivery systems adjust to the current and future budget reality of the City. As this "right-sizing" occurs, vehicles that are no longer needed for one program will be shifted to another to ensure the City is replacing the vehicles that are the oldest and in the worst condition. This strategy helps extend the useful life of the entire vehicle and equipment inventory.

To assist in the overall management of the City's fleet asset inventory, Public Works utilizes an asset management software application called AssetWorks to monitor equipment utilization, maintenance and repair programs, and fuel management operations. AssetWorks provides the information and reporting to assist staff in maximizing the lifecycle of the City's investment in vehicle and equipment assets.

The current backlog for the entire Fleet Management Program is \$9.3 million. However, if current funding levels remain consistent over the next five years, the \$9.3 million will decrease to \$6.7 million due to higher levels of contributions from special funds. Vehicles that provide support for General Funded activities have a backlog of approximately \$6.5 million. The average annual need for General Fund-only replacement vehicles is \$2.5 million. The annual funding of \$1.2 million leaves an ongoing need of \$1.3 million. In addition to the General Fund-only portion of the backlog, a backlog of \$2.8 million exists for vehicles that support special fund efforts. This includes equipment at the Regional Wastewater Facility, vehicles supporting fee programs, and vehicles supporting capital programs. This year's backlog includes annual estimated special funding amounts of \$2.0 million for vehicle replacements. Public Safety vehicle funding has remained fully funded to ensure service. It is anticipated that the 2019-2020 budget will include funding for General Fleet replacement. These replacement projections are calculated with vehicles reaching both age and mileage thresholds. There are a significant number of vehicles reaching age only that are not included in the backlog. It is important to consider, older vehicles cost significantly more to maintain. Replacing older vehicles regardless of miles results in lower operating costs, higher availability, cleaner emissions, greater safety features, and better fuel economy.

Parks, Recreation and Neighborhood Services

The Department of Parks, Recreation and Neighborhood Services manages parks, community centers and various properties throughout the city. Examples of the City's infrastructure assets under this category include:

- 204 Neighborhood and Regional Parks, three golf courses and numerous Open Space areas totaling 3,534 Acres
- 283 Playgrounds
- 11 Dog Parks
- 85 Tennis Courts

- 20 Bocce Courts
- 82 Basketball Courts
- 7 Outdoor Fitness Areas
- 6 Aquatic Facilities
- 7 Neighborhood and 1 Regional (Lake Cunningham) Skate Parks
- 17 Community Gardens
- 100 Athletic Fields Supporting Youth and Adult Soccer, Baseball, Softball, and T-Ball
- 61 Miles of Paved Trails
- 71 Trail & Park-Related Bridges
- 6 Park Service Yards
- San José Family Camp

Within these facilities are numerous assets such as water fountains, benches, restroom buildings, irrigation piping and sprinkler heads. These items have not been specifically quantified yet but represent significant assets that contribute to the PRNS backlog.

Community Centers, re-use facilities and other key building assets such as the buildings at Happy Hollow Park and Zoo, the Japanese Friendship Garden and Overfelt Park are included in the building facilities section of this report. Backlog value on these assets is repeated here to provide an overall snapshot of PRNS information.

PRNS estimated infrastructure backlog needs at approximately \$200,149,000 as of FY 2013-14. That number is adjusted annually based upon asset lifecycles and unfunded liabilities. Table PRNS-1 shows the estimated backlog for various PRNS amenities. The table has been modified from past years to reflect additional data categories currently in development by PRNS. In coming years we will be building the information databases needed to more accurately quantify and track backlog in specific asset classes. This improved data management seems likely to increase the overall infrastructure backlog estimate for the parks system.

Despite an estimated five-year capital budget of \$342.1M, the parks related infrastructure backlog continues to grow at a rate that exceeds the capital budget. PRNS will continue to explore alternative funding sources to offset both capital and operating expenses and reduce its DMIB burden.

TABLE PRNS-1
PRNS Asset Backlog Estimates (Begin FY 2018-19)

Park Component	Estimated Backlog 2019	
Park Grounds ¹	\$	89,836,000
Playgrounds	TBD (see below)	
Sport Courts / Fields	TBD	
Pools	TBD	
Bridges	TBD	
Park Yards	TBD	
Trails	\$	12,571,000
Regional Facilities	\$	99,003,000
<i>Park Component SubTotal</i>		<i>\$ 201,410,000</i>
Community Buildings ²	\$	57,632,000
Other Buildings ²	\$	70,793,000
Restrooms ²	\$	2,566,000
<i>Building Component SubTotal</i>		<i>\$ 130,991,000</i>
TOTAL PRNS BACKLOG		\$ 341,401,000

1. Value is estimated from 2013-2014 data. In future years this category will be separated into the other categories noted in the table and this category will be modified to reflect basic park amenities like benches, drinking fountains, sidewalks, irrigation, etc.
2. These figures are included in the Building Facilities backlog section of this report.

As previously noted, with this report, PRNS has added additional categories of assets, although the backlog costs of these have not yet been estimated. In future years staff intends to develop costs for these items to reflect more accurately DMIB costs. For example, Public Works is beginning work on a Park Service Yard study that will evaluate current park yards and make recommendations for improvements to existing or construction of new facilities.

Playgrounds

New in 2018, PRNS completed an inventory and developed GIS mapping of its playground assets. Playgrounds are critical City infrastructure that require regular maintenance, inspection, renovation, and plans for routine replacement. They are exposed to the elements, wear and tear from everyday use, and are vulnerable to vandalism. As equipment ages, replacement parts to make needed repairs often become unavailable. Notably, playgrounds in San José lack uniformity, as equipment varies from park to park. The age of the equipment and the variety of manufacturers used can make replacement of parts difficult, if not impossible.

The lack of available compatible replacement parts often leaves PRNS with the sole option of completely removing damaged play equipment. Newer equipment cannot be installed at these older playground locations without also addressing the Americans with Disabilities Act (ADA), and California accessibility requirements, adding complexity and cost to the work needed to provide a new playground.

Table PRNS-2 shows the number of playgrounds in each Council District placed into one of four age categories: 1) less than 10 years; 2) 11 to 14 years; 3) 15 to 20 years; and 4) older than 20 years.

**TABLE PRNS-2
 Playground Age by Council District
 (as of October 4, 2018)**

Playgrounds	CD 1	CD 2	CD 3	CD 4	CD 5	CD 6	CD 7	CD 8	CD 9	CD 10	Total Citywide
≤ 10 Years	2	11	12	12	8	7	22	6	6	3	89
11 - 14 Years	0	1	6	1	3	4	2	6	1	9	33
15 - 19 Years*	13	17	13	15	14	12	11	4	15	19	133
≥ 20 Years*	4	5	6	0	2	0	0	7	2	2	28
Total	19	34	37	28	27	23	35	23	24	33	283

* Meets or exceeds the target lifespan of playground equipment

Per Table PRNS-2, more than half (57%) of existing playgrounds (161 out of 283) are at or have exceeded the target lifespan of 15 years. Of the remaining playgrounds, 33 are 11 to 14 years old, suggesting replacement will be required within the next five years.

Playground replacement costs vary with the size of the playground, the type of equipment selected, and the method of construction. Replacement costs typically range from \$600,000 to \$1,000,000 per playground depending on the type of equipment, size of the playground and complexity of the site. At \$600,000 per playground, this could end up adding \$96,600,000 to the PRNS facilities infrastructure backlog deficit. This number is not included in the above tables describing the PRNS backlog at this time as staff is still in the process of vetting the information.

Service Yards

The four City service yards include 325,000 square feet of building space and over 1,800,000 square feet of property. The estimated backlog in each yard is included below:

Service Yard Facilities	Backlog
Central Service Yard	\$ 8,925,000
Mabury Yard	\$ 5,200,000
South Yard	\$ 3,325,000
West Yard	\$ 3,250,000
Total Budget Need	\$21,600,000

Improvements in service yards are funded through the construction and conveyance tax funds allocated to the Service Yards fund. The Service Yards program is currently underfunded and a comprehensive life cycle analysis was completed in FY 2016-17. Capital improvement needs are warranted at these facilities on an annual basis, including, paving, mechanical, plumbing, HVAC, roofing and various modernization projects. Levels of current operating budgets and special appropriations for capital renewal and deferred maintenance also affect required funding levels. However, inevitably, building systems and components deteriorate and need replacement. If C&C funding levels for maintenance will continue to be the source of funding for these facilities, the current funding levels will fall short in meeting the long-term deferred maintenance needs.

The High Speed Rail (HSR) project may reduce the future infrastructure needs for the South Yard facility. Depending on the option selected, the South Yard may need to be completely redesigned and rebuilt to accommodate the track alignment for the HSR, and the cost to rebuild the South Yard would be absorbed by the HSR project.

Sanitary Sewer

The sanitary sewer collection system includes:

- 2,030 Miles of Sanitary Sewer Mains (6 inches to 90 inches in diameter)
- 10 Miles of Force Mains
- 19 Pump Stations
- 45,000 Manholes
- 202,000 Lateral Connections

Approximately 80% of the City sewer collection system is at least 40 years old. The Department of Public Works (DPW) is leading the implementation of a comprehensive Condition Assessment program with the Department of Transportation's (DOT) assistance to determine the infrastructure improvement needs of the aging system. Data gathered from the Condition Assessment will be utilized by both departments to determine the capital projects necessary to maintain the service life of the system as well as operations and maintenance programs to ensure uninterrupted conveyance of sewage to the treatment plant.

In order to meet the more stringent regulatory requirements of the State Sanitary Sewer Systems-Waste Discharge Requirements, DOT has made significant investments for additional equipment, personnel, and contractual resources in the implementation of several critical Sanitary Sewer Overflow (SSO) reduction strategies over the past five years. These strategies include increased sewer line cleaning productivity, proactive cleaning of problematic sewer lines, implementation of an SSO first responder program, chemical treatment or mechanical cleaning of sewer lines identified as having heavy root intrusion and growth, and continued collaboration with the Environmental Services Department (ESD) to address commercial areas that have evidence of excessive fats, oils, and grease (FOG) in their sewer mains.

Since beginning the implementation of the SSO reduction strategies in 2011, DOT has recorded a consistent reduction in SSO occurrences.

Fiscal Year	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18
Number of SSOs	155	101	97	55	58	22

The 22 SSOs are equivalent to approximately 1.08 SSOs per 100 miles of sewer main per year. The continuing downward trend in SSOs is attributed to the improvements made in the maintenance of the existing sewer system in conjunction with the DPW repair and rehabilitation projects identified through the Condition Assessment program and Sanitary Sewer Capital Improvement Projects. DOT continues to adjust its maintenance program and will continue to evaluate the program's performance as it works towards keeping the SSO rate at fewer than 3 SSO events per 100 miles of sewer main annually.

Three main components critical to the optimal performance of the sanitary sewer system include:

1. Adequate sewer conveyance and treatment capacity that would meet the needs of the City's Envision San José 2040 General Plan;
2. Replacement/Rehabilitation program that would extend the useful life of the City's sewer assets;
3. Operations and Maintenance program that aligns with the City's core services while enhancing the SSO Reduction Program.

Capacity Needs

To manage system capacity needs, DPW staff has developed a trunk sanitary sewer system hydraulic computer model using InfoWorks ICM which includes sewers of 10 inches or larger in diameter. Staff uses a systematic process that incorporates population data, land use development and planning information, water use and flow monitoring data, and design criteria to estimate sewer flows in the model. The model is used to assess system performance for existing, near-term (5- to 10-year horizon) and long-term under dry and wet weather flow scenarios, identify system deficiencies, and recommend capacity improvement projects. The completed Citywide Trunk Sewer System Master Plan and North San Jose Detailed Master Plan in 2013 (Master Plan) identifies over 100 sewer capacity improvement projects totaling approximately \$190 million, of which about 75% of the projects, or \$146 million, were to address existing deficiencies. Since FY 2008-09, the City has included 40 of these projects into the multi-year CIP work plan, and to date, 35 of these projects have been completed.

Staff continued to use flow monitoring data collected through the ongoing flow monitoring program to evaluate and validate the remaining projects to address existing deficiencies. As of end of FY 2017-18, all projects with existing capacity deficiencies have been reviewed against

recently collected flow data. As a result, 21 new projects totaling nearly \$29 million were confirmed to have existing capacity deficiencies and are considered as infrastructure backlog rather than deferred maintenance. This equates to an annual cost of \$2.9 million per year for the next 10 years.

Staff is working on expanding the model to include smaller sewer mains of 8 inches in diameter or less. This effort will result in new capacity improvement projects being added to the work plan in future years.

Rehabilitation and Condition Assessment Needs

DPW staff currently manages sewer video inspection data and coding standards utilizing InfoMaster to analyze and prioritize repair and/or rehabilitation work. DPW staff is currently managing several contracts to perform pipeline inspection utilizing closed circuit television. Coupled with defect coding analysis and sewer repairs, 55% of the collection system has been inspected. This progress is in alignment with the recommendations from the Pilot Sanitary Sewer Condition Assessment Program (SSCA) completed in 2011. Utilizing a risk-based analysis of statistic samples of the sewer system revealed the need to invest in frequent monitoring of the high-risk pipelines. The SSCA recommended an annual investment of \$28 million for system rehabilitations in order to prevent the system from further deterioration. The SSCA also recommends a 10-year remote video inspection and analysis program for the collection system which equates to 10% annually. As the SSCA program continues, it is anticipated that additional funding may be needed to design and construct sewer infrastructure repair and rehabilitation projects identified in the SSCA program. Completion of these projects reduces the potential risk of SSOs due to structural deficiencies in the system and may augment the Operations and Maintenance program.

Staff is working on developing a new Interceptor Management Program for the interceptor system. The interceptor system consists of a series of parallel, large diameter pipelines that extend from 7th and Empire Street, north along 7th, 5th, and 4th Streets to Highway 101, and across Highway 101 along Zanker Road to the Regional Wastewater Facility located north of Highway 237. The Interceptor Management Program will include a condition assessment program which would remove accumulated debris, clean and evaluate the interceptors and prioritize the portions of pipe that may require rehabilitation and/or repair. The program will also include the evaluation and rehabilitation of the City's soil bed filters that assist with removing odors and corrosive sewer gases from the interceptors. The soil bed filters are located at Canoas Garden and at Structure B on Zanker Road. Currently the facilities are outdated, not working efficiently, and in need of replacement or upgrading utilizing newer filter technology. The total cost for this Interceptor Management Program is still under development.

Operations and Maintenance

DOT staff has been implementing several elements of the SSO Reduction Program that was developed to address the results of the 2010 EPA / San Francisco Regional Water Quality

Control Board (SFRWQCB) audit. Currently, DOT staff utilizes an in-house developed, GIS-capable CMMS software which tracks maintenance history, work orders, inspections, and work performance efficiency. Recommendations after extensive analysis of available data have been incorporated into the planning and scheduling of O&M activities. This effort, in conjunction with procurement of additional O&M maintenance vehicles and equipment, has resulted in the steady decline in the repair backlog and in the number of SSOs. Last year, the 942 miles of sewer lines cleaned was consistent with the 936 cleaned in FY 2016-17. In order to continue the implementation of the strategies, it is anticipated that additional funding may be necessary to further reduce the number of SSOs within the City.

Funding

The Sanitary Sewer Capital Program annual funding need is calculated based upon the results of the 2011 Sewer Condition Assessment Pilot, the projected cost of performing the condition assessment and system improvements, and an analysis of capacity improvement projects needed to address existing deficiencies in the system.

With the return of the economy and neighboring cities and agencies that have the same need to repair and rehabilitate their aging utility infrastructure, construction costs have steadily increased over the last few years which result in a need of additional funding of \$1.4 million to a total of \$37.2 million to fully fund the annual capital program.

Beginning in FY 2015-16, the annual transfer from the Sewer Service and Use Charge Fund (SSUC Fund) to the Capital Fund was increased and maintained at \$32 million per year, leaving a projected \$5.2 million funding gap.

The implementation of the Exfiltration Abatement Program has been carefully crafted into the CIP; however, construction escalation has stretched the current budget that was allocated to this program and may need some adjustments in the out years. Staff will continue to monitor all expenditures related to the Exfiltration Abatement Program and request for adjustments to the budget or staffing as needed.

ESD, DOT and DPW are currently working together to identify the annual funding needs of all the programs that are funded from the SSUC Fund (Wastewater Treatment Plant Operating and Capital, Collection System Capital, and Operating and Maintenance). The final result of this interdepartmental collaboration will be a 10-year rate strategy to advance all three programs.

The annual operating and maintenance costs (managed by DOT, currently at \$18.6 million) may also require future increases to enable DOT to continue implementing various strategies aimed at decreasing SSOs and response times. The purchase of additional equipment and resources to implement technology solutions that will enable better system monitoring and more efficient maintenance operations are some of the future investments under consideration. As the pavement maintenance program increases production as a result of new funding streams, the number of sanitary sewer miles investigated via CCTV will increase to proactively identify

sewer defects with the goal of repairing them prior to paving. Current CCTV and sewer repair capacity will need to be increased temporarily to meet this expansion. DPW and DOT are working together to evaluate existing capabilities and determine if more resources need to be considered through the budget process.

An idealized annual investment for both the Capital Improvement needs (for rehabilitation and capacity expansion) and O&M of the system would total approximately \$55.8 million per year for the next 10 to 20 years as shown in the following table:

Annual Need for Maintenance and Infrastructure	
Rehabilitation	\$29,400,000
Condition Assessment	\$ 3,900,000
Capacity Projects (existing users)	\$ 2,900,000
Total Capital Need	\$37,200,000
O&M (DOT)	\$18,700,000
Total Capital and Operating Need	\$55,900,000
2018-2019 Adopted Budget Funding	\$52,300,000
Total Annual Unfunded Need	\$ 3,600,000

After taking into account DOT operating costs (\$18.7 million) programmed in the FY 2018-19 Adopted Operating Budget and the amount of resources added into the FY 2018-19 Adopted Capital Budget (\$33.6 million, which excludes fund balance primarily used for continuing projects and Sanitary Sewer Joint Participation projects), the remaining annual unfunded need is approximately \$3.6 million. This need will be evaluated on an annual basis to determine if any future funding increases are required. Any future funding modifications will be the result of a collaboration between ESD, DOT and DPW that considers the needs at both the Regional Wastewater Facility and the sanitary sewer collection system, as well as long-term rate payer impacts.

Storm Sewer

The storm sewer collection system includes:

- 1,250 Miles of Storm Sewer Pipe
- 32,200 Storm Drain Inlets
- 1,567 Storm Outfalls
- 31 Pump Stations

A hydrologic and hydraulic (H&H) computer model that integrates the City's storm drain system (24-inch and larger) and the downstream riverine system has been developed for the Citywide Storm Sewer Master Plan. The modeling effort was coordinated with the Santa Clara Valley Water District for storm runoff methodologies and parameters, and for use of their HEC-RAS riverine model as boundary conditions. The integrated model was calibrated using recent years'

wet season flow and rainfall data, and validated using observed creek levels and flooding data for recent storm events.

The H&H model, simulating the 10-year 24-hour design storm event, used a 3-year event and past flooding locations to identify and prioritize capacity improvement projects. Twenty-two high-priority projects were recommended to alleviate flooding at locations previously identified by DOT and other locations where flooding of 6 inches during a 3-year event is anticipated. These high-priority projects require a wide range of improvements including installation of new storm sewers, upsizing of existing storm sewers, and construction of a new 225-cfs pump station on Charcot Avenue as discussed further below. With the allocation of \$35 million from Measure T to construct the Charcot Pump Station, the capital cost for the remaining high-priority projects for flood protection purposes is estimated to be \$180 million.

The 2019-2023 Adopted CIP provides improvements to the storm sewer collection system in Alviso and other critical areas, as well as continues pump station and outfall rehabilitation and minor storm sewer improvement projects. It has been identified that over 358 outfalls have deteriorated and require rehabilitation. In addition, any improvements within the riparian corridor of City-owned creeks require mandatory environmental mitigation, monitoring and reporting to the regulatory agencies for a minimum of 10 years. The current annual funding to rehabilitate these outfalls is only \$250,000. Improvements of these outfalls in a timely manner will require additional funding and resources.

Funding for the Storm Sewer Capital Improvement Program is derived from a transfer of funds from the Storm Sewer Operating Budget, which is funded through Storm Sewer Service Charge fees. These charges are assessed annually on properties and collected with real property taxes. The transfer level in the 2019-2023 Adopted CIP is \$4.0 million in 2018-2019 and \$4.0 million per year for the remaining years of the 5-year CIP. This level of funding is marginally sufficient for staff to continue work on the master plan, impact the maintenance backlog by constructing projects to address known localized ponding and flooding, improve the existing system reliability, and increase the conveyance capacity in Alviso. Additional resources will be needed, however, as projects from the master plan as well as the developing green infrastructure plan are identified.

The flood event in February 2017 also shed light into the maintenance of waterways within City's owned properties. The City currently doesn't have funding to maintain the waterways, and while the Water District has been collecting funding for this purpose, they don't have encroachment permits or rights of entry to do work in and on City-owned property and City rights of way. City staff will work with the Water District to understand the processes that are necessary for this to occur and subsequently can coordinate in this effort to clean the creeks.

During these notable storms and other major storm events, DOT staff also observed severe flooding/ponding along the Taylor Street, Stockton Avenue, Cinnabar Street, and West Santa Clara Street storm systems, particularly at the Pershing Avenue, and Taylor Street underpass and West Santa Clara Street underpass. DPW staff has identified approximately 13,900 feet of

pipeline projects to improve the capacity of these systems, and the costs are estimated at roughly \$14 million.

Impacts of Measure T

A total of \$35 million was allocated for Storm System Conveyance & Flood Prevention Project. This funding will be utilized for high priority projects identified in the Deferred Maintenance and Infrastructure Backlog. The highest priority project is the design and construction of a new storm water pump station in North San Jose near Charcot Avenue/Coyote Creek.

A total of \$25 million was allocated by the Measure T to install multi-benefit regional green infrastructure (GI) projects. ESD collaborated with PRNS and PW and identified six regional GI locations at River Oaks Detention Basin, Kelley Park Horse Stables and Disc Golf areas, Vinci Park, Roy Butcher Park, and Tully Ballfield Park. This investment aligns with the need to invest in green infrastructure to further the environmental goals of the City.

ESD is also actively seeking grant funding for these projects. The 2018 Proposition 1 Integrated Regional Water Management Grant Program requires City provide 50% matching fund for each approved project.

Information Technology

The City of San José Information Technology Department (ITD) mission is to execute, secure, and sustain the civic solutions that allow San Jose to thrive. The department enables the workforce through voice and data communications, executes citywide protects, and administers critical application and data systems. Ultimately, ITD enables City service delivery through the technology solutions employees depend on to perform their jobs. Providing strong strategic direction for technology investments across the organization leverages IT funding for maximum benefit to all City service areas.

Background

After a decade of deficits, City Council dedicated to rebuilding the City's information and communication technology capabilities as part of the passing of the San Jose Smart City Vision in 2016. Replacing obsolete assets was important due to failure rates affecting department operations. Additionally, audit findings have identified mounting resource, project execution, policy, and security needs related to the City's technology operations. Most important however, the Vision established the importance of the smart use of technologies to building more responsive, inclusive, and sustainable City services.

In mid-2017, City Council approved the City's Innovation and Technology Strategic Plan, which detailed the organization's approach to resolving accumulated Tech Debt and path toward investing in transformative efforts that radically improve City services. The city focused on modernizing core systems and solutions between 2016 and 2018. While significant investments

remain, Fiscal Year 2019-2020 serves as the point where the City can begin concentrating on more forward-looking initiatives with departments, progressing the City Manager's Enterprise Priorities and those set by Mayor and City Council.

The Enterprise Technology Portfolio includes the following assets:

- **Business Solutions**—Human Resources, financials, payroll, talent management, utility billing, treasury, revenue, enterprise content management, and similar critical enterprise systems and platforms.
- **Cybersecurity**—Perimeter defense systems, desktide and client anti-malware, incident management systems and services, and education/training resources.
- **Data/Voice/Video Networks**—Routers and switches constituting the Municipal Area Network, wireless access equipment and systems for major City facilities, telephone services and equipment, load balancing systems, remote access systems, software defined networking platform, and network monitoring and alerting systems.
- **IT Infrastructure and Operations**—Server compute, data storage, and backup solutions, server virtualization platform, virtual computers platform, and help desk/case management systems that support about 7,000 users and over 500 enterprise servers used citywide.
- **Public WiFi Network**—The Wickedly Fast WiFi public wireless network connecting San Jose International Airport, the Convention Center, Downtown core, and East Side Union High School District partner network.
- **User Computing Environment**—Approximately 6,800 PCs, 9,500 VoIP phones, and 4,100 city-owned mobile computing and communications devices.

Status

Overall, the deferred maintenance and infrastructure backlog for ITD is approximately \$21.6 million in one-time costs and an estimated \$381,000 annually. These estimates represent the cost to replace aging infrastructure using 2019 dollars. Adding to the need to invest, the City's Tech Debt continues to accumulate each year it is unaddressed—siloeed assets prevent interoperability needed to support the San Jose Smart Cities Vision, failures and outages increase, and local governments now face considerable Cybersecurity risks that have disrupted public services in peer communities and that necessitate new investments. In a number of critical areas, deferred infrastructure costs are abnormally low. While accurate, it is because business systems that provide higher redundancy and security are missing from the City's portfolio—a product of lack of investment during the City's budget deficits. As detailed in the City Auditor's Annual Report on City Services 2017-18, ITD's operating budget is 18% lower than its budget 10 years ago.

Current figures are part of a review of IT assets that were part of the City's IT Strategic Planning Process completed at the end of 2016 and partially updated in 2018. Some assets were discovered to have been unaccounted for previously or underestimated as ITD has worked with departments to develop a clearer view of citywide software usage. It is clear that the City's large

deferred maintenance and infrastructure backlog has accumulated to a point where major investments are necessary and even unavoidable.

IT Strategic Plan Initiatives

Re-platforming the City on current technologies that will sustain operations and innovation efforts is one of the four major initiatives of the IT Strategic Plan approved by City Council. The replacement value of existing assets for core enterprise infrastructure hardware systems is slightly under \$11.0 million and includes all technology equipment needed to support enterprise services. It excludes department-specific information technology equipment used by Police, Airport, and Libraries that have dedicated staff and funding to support their infrastructure operations.

Approximately 51% of the supporting IT hardware is past End-of-Support or End-of-Life. This is a major improvement versus 2016. One-time costs to replace deskside and Data Center IT assets is approximately \$5.8 million, with an ongoing maintenance cost of roughly \$381,000. One of the largest costs of the infrastructure backlog is the estimated \$2.6 million needed to replace approximately 2,160 desktop computers that are over six years old and account for 52% of the total desktop inventory. Again, this excludes Police, Airport, and Library departments, which run their own IT asset management programs and for which IT does not receive a complete inventory. Those departments advocate for their needs separately, as part of their departmental budgets.

The audit of City mobile devices and usage also identified a large inventory of assets that are handled under the operating budgets of departments and not funded as part of a replacements program. The City may obtain savings on this cost by eliminating redundant uses, consolidating purchasing to take advantage of volume purchasing discounts, and standardizing asset management to rationalize licensing agreements and subscriptions. Asset management and tagging improvements were made by IT and departments in 2018. Further improvements are still required.

The balance of the infrastructure backlog connects to replacement of the remaining network switches in the data closets, wireless access points, and uninterruptible power supply equipment. Increasingly, ITD is unable to respond to new requests from departments due to the age of the City's current hardware, virtualization software, and server operating systems. As the City's IT infrastructure continues to age, the number of outages and lost work hours continues to grow, and the cost for vendor support of obsolete IT assets continues to rise. Current practice is to replace components of the server environment as they fail, sometimes with used and auctioned parts. Often, to work around an aged core, City departments maintain disparate technologies for their operations, replicating costs. This fragmented environment increases the infrastructure backlog in technology and diffuses the effect of IT investments organization-wide. As a result, some departments are modernized whereas the majority of the departments are forced to operate on IT assets which are now unsupported.

In an effort to remediate these needs, \$2.1 million was included in the 2018-2019 operating budget for a core infrastructure refresh for critical servers. The new environment will provide a consolidated IT infrastructure environment for all department— providing server, storage, and virtualization capacities with higher availability, cloud-access, business resumption, and security that any current City server environment. The contract award occurred in December 2018 and final contract negotiations are expected to be completed by the end of January 2019. It is important to note that this environment modernizes primarily the City's server portfolio serving core and critical systems. However, the new infrastructure is configured to be scalable as needed. Thus, departments can and are planning to migrate to the new IT server environment at an advantageous cost as their end-of-life equipment fails, or as they can assign resources to move earlier.

ITD maintains almost 500 virtual and physical servers for the City. Audits of City servers found a large number of obsolete systems that must be upgraded for security and support purposes. ITD is working on related needs for an Asset Management and Control solution, as well as with Microsoft to true-up the City's overall licensing for proactive management on an ongoing basis. These costs will be evaluated as part of the 2019-2020 Proposed Budget development process.

One important industry shift is the transition to forced-maintenance of software on a subscription basis. This was noted in FY 2017-18 by ITD and the City will begin to observe this trend in the form of budget shifts from large periodic capital investments toward ongoing operating expenditures. In this new reality, the City will be required to pay to maintain its IT environment and will have fewer options to allow IT assets to age out of support. While this is positive in preventing future Tech Debt to accrue to the point of failure, the City will need to set strong strategies to manage costs as those models displace one-time purchase software in addressing the organization's current and future needs. Strategies include enterprise agreement management by dedicated personnel who can track and negotiate better city-wide pricing, consolidated IT purchasing, and use of accounting codes for more precise fiscal tracking.

Of special note, the City's Financial Management System (FMS) is almost 30 years old and based on a system architecture from the 1980s. Although an update is underway and on-target for completion in mid-2019, departments report the system lacks key functionality that would help them better manage their finances in real time. This includes fiscal detail level, contract administration, interfaces with the procurement system, budgeting, project and program cost accounting, and the like. In many cases, the City has addressed the functional deficiencies with duplicate or "side" systems and/or tools designed for other functional needs. The Finance Department and ITD estimates cost to re-platform the Finance system at approximately \$15 million. The City should consider beginning to accrue funds for that project.

The City has not positioned to use an enterprise content management system (ECM) across departments, causing an inability to effectively administer a Records Management Program and eDiscovery program at the level staffs require. An ECM is used to create, store, distribute, discover, archive and manage unstructured content, such as scanned documents, email, reports, and office documents to enable organizations to deliver relevant content to users where and when

they need it. City records may be kept beyond the legally mandated time required. Similarly, records may be disposed of prematurely without an ECM, risking spoliation violations. The SharePoint implementation that is part of the City IT portfolio includes an enterprise-class content and records management solution. However, the City has struggled with adoption across departments. ITD will focus on records management with target departments to cover critical needs first in 2019. This will serve as the foundation for broader success of ECM citywide. The estimated one-time and ongoing costs for completing implementation of the ECM and eDiscovery Center solutions are estimated to be \$370,000 one-time and excludes any additional staffing.

A final modernization need is in the area of the Emergency Operations Center and backup. With the transition of the new Office of Emergency Management (OEM) to the City Manager's Office, ITD took on support of OEM personnel. In reviewing the EOC assets and IT infrastructure, all sides identified the history of piecemealing computers, audio-visual systems, and networking through occasional grants and one-time funding as insufficient for an EOC that functions well in a crisis. With the passage of Measure T, a preliminary analysis indicates that operating investments of more than \$800,000 should be set aside for the IT needs of construction of the new EOC.

Addressing growing risks of cybercrime and cyberdisasters to ensure the City's resilience to attacks is another of the four major initiatives of the IT Strategic Plan approved by City Council. Information and systems security require investment and standardization across departments. Multiple audits have made significant findings of the current state of the City's security staffing, IT assets controls, and systems administration. These needs couple with a shift toward a mobile-enabled workforce that places City IT assets and information in the field, exponentially growing risk of cybercrime, and the absence of adequate cybersecurity talent.

For Fiscal Year 2017-2018, the City Council approved the creation of a Cybersecurity Office and City Information Security Officer (CISO) position to manage the City's emerging threats and risks. The office and staff have been hired and are leading implementation of the Cybersecurity Workplan with specific focus areas in the first year. The goal is to achieve a baseline level of cybersecurity maturity by the end of 2019.

Because of increasing risks and threats, Cybersecurity will be a primary area for continued investment in future years and will be evaluated during the 2019-2020 Proposed Budget development process.

Future State of IT Infrastructure

The significant remaining technical infrastructure backlog includes those items related to hardware replacements, and network and security architecture. The City has made significant one-time strides in dealing with core enterprise applications that were a part of the infrastructure backlog, leaving primarily FMS and an electronic content management system needing to be updated.

Over recent fiscal years, ITD invested \$500,000 focused on desktop modernization, \$1,000,000 on network infrastructure modernization, and \$20,000 on completion of the secondary data center buildout. Additionally, funds included in the 2018-2019 operating budget will allow ITD to initiate a \$1.6 million infrastructure refresh and a \$500,000 City Open Data Environment investment:

While the reduced infrastructure backlog is encouraging, an ongoing revenue source for a sustainable, modern IT environment continues to be a major obstacle in preventing the accumulation of technology debt. In addition, a lack of ongoing investment in technology will lead to an accumulation of deferred maintenance, as well as a return of some systems to an infrastructure backlog. As identified in findings by the City Auditor, a Technology Replacements Fund is recommended to be established to accumulate resources for future replacements of the City's aging technology infrastructure that can be upgraded in a phased approach or have become subscription-based. One approach to plan for the immediate and future replacement of aging infrastructure would be to set aside funding each year in smaller amounts rather than any single year in a large amount. Establishing a sinking fund would also ensure the City can upgrade to new equipment when it becomes available rather than justifying ongoing capabilities against immediate needs. As the City has witnessed from its decade of disinvestments, neglecting core investments in the tools and technologies used citywide have long-term negative impacts on the City's culture, ability to improve services and efficiency, and accumulate large deficits that are hard to overcome.

Radio Communications Program

The City's infrastructure assets under this category include:

- Citywide Public Safety Radio Systems – 29 Radio Channels
- Simulcast Radio Systems – 11 Radio Channels
- City Owned Radio Sites – 18 Sites
- City Owned Equipment at Non-City Owned Sites – 12
- Enterprise Radio Systems – Regional Wastewater Facility, Airport, and Convention Center
- Fixed equipment distributed at the above sites to operate the various radio systems:
 - Voting Receivers – 167
 - Base Station Transceivers – 112
 - Voting Comparators - 39
- Public Safety Answering Point (PSAP) – 33 Radio Consoles at Main Dispatch PSAP and 14 Radio Consoles at Alternate PSAP
- Subscriber Units (Mobile and Portable Radio Devices) – Approximately 6,700 Units (2,827 are already configured to use with SVRCS with 78 left to purchase this fiscal year and 167 left to purchase in FY 2019-20)
- Inventory for Support & Maintenance (Spare Parts & Supplies) – Approximately 1,000 Units

- Test Equipment – 52 Units

The Silicon Valley Regional Interoperability Authority (SVRIA) is a joint powers authority consisting of 19 member agencies, including the City of San José, whose mission is to identify, coordinate, and implement communication interoperability solutions to its member agencies by integrating voice and data communications between law enforcement, fire and rescue services, emergency medical services, and emergency management for routine operations, critical incidents and disaster response and recovery. The Silicon Valley Regional Communications System (SVRCS), a multistage project coordinated by SVRIA, will replace the existing public safety radio systems currently in use in Santa Clara County with a system that uses the 700/800MHz spectrum, which allows for enhanced data transmissions, additional capacity for mutual aid scenarios, and the ability to record transmissions for training purposes.

The 2019-2023 Capital Improvement Program allocates approximately \$2.5 million to the Silicon Valley Regional Communications System – Radios project from 2019-2023. In addition, the City will use grant funds to help supplement the purchase of SVRCS radios for Police and Fire.

Transportation Infrastructure

The City's infrastructure assets under this category include:

- Street Pavement – 2,434 miles
- Traffic Signals – 956 signalized intersections
- Roadway Signs – 90,495 traffic control signs; 3,398 intersection street name signs; 26,509 residential street name signs
- Roadway Markings – 5,700,000 square feet of markings; 513,005 raised pavement markers (RPMs)
- Streetlights – 65,029 streetlights and poles
- Landscaping – 242 acres of landscaped properties for general benefit
- Stormwater Treatment Control Measures (TCMs) – 13 locations comprised of 128,500 square feet of landscaping, 2 pump stations, 11 subsurface infiltration systems, and 13 tree well filters
- Street Trees – 252,564 street trees (19,197 City-maintained) and 75,098 vacant street tree sites (880 on City parcels)
- ADA Compliant Curb Ramps – 29,876 locations (6,191 locations with no ramps; 17,060 locations with ramps that are not fully compliant and need modification or replacement; 6,625 locations currently in compliance)
- Bridges – 158 National Bridge Inventory (NBI) vehicular bridges (20 feet or greater in length); 78 vehicular bridges less than 20 feet in length; 20 pedestrian bridges

Street Pavement

The City's most significant transportation asset is the street network consisting of 2,434 miles of pavement. The current Pavement Condition Index (PCI) for all San Jose streets is 66 on a 100-point scale, which is a rating of *Fair*. The combination of age and the lack of adequate investment in the maintenance and repair of the street network over the years has resulted in continued degradation of its condition. The one-time deferred maintenance backlog has increased to \$539.1 million in 2018. Based on current data, \$102 million is needed annually over a 10-year period to improve overall pavement conditions to a rating of Good (PCI 70 or higher) and eliminate the backlog.

The combined revenues from Senate Bill 1 and Measure T will account for an average of \$47.5 million annually for street pavement maintenance over the next 10 years. Additionally, VTA 2016 Measure B is projected to provide approximately \$19 million in ongoing annual funding. With resolution of the challenge, the City anticipates initiating maintenance on the City's local and neighborhood streets in 2019 with two years of accumulated allocations totaling approximately \$42.8 million. DOT will also receive a federal grant which will provide approximately \$17.7 million for maintenance on the major streets in the 2020 construction season. These combined funding sources bring the average annual funding level for pavement maintenance over the next 10 years to approximately \$87.2 million, an increase of \$37.1 million from the 2018 report in which the 10-year funding estimate was \$50.1 million.

With approximately \$87.2 million in ongoing funding, the City will be able to fully fund pothole repairs, program management activities, and maintenance on the 944-mile Major Street Network which carries over 85% of City traffic. Should VTA 2016 Measure B funds become available, DOT will provide maintenance on approximately 200 miles of the 1490-mile residential street network in 2019 in addition to the Major Street Maintenance Program. In 2020, DOT will initiate its first year of Measure T street resurfacing, which, in combination with annual allocations from VTA 2016 Measure B, is expected to provide maintenance to all residential streets in the City within a 10-year horizon.

Although the ongoing 10-year annual funding levels are \$14.8 million short of the amount needed to restore the overall network to *Good* condition (PCI 70 or higher) in 10 years, this is a dramatic improvement from the 2018 report, where the annual shortfall was projected to be \$42.7 million. DOT estimates that this funding level will improve the average condition of the street network and reduce the deferred maintenance backlog. In addition, primarily with the investment of \$300 million for pavement from Measure T, the anticipated street backlog by 2028 is expected to be approximately \$600 million which is a reduction of approximately \$500 million from previous projections of \$1.1 billion in prior reports. This is a result of allowing other ongoing funding sources to be utilized for cost effective preventative maintenance and avoiding the further deterioration of many street segments.

DOT will provide an update regarding residential street paving plans and revised PCI projections with new funding to the Transportation and Environment Committee in March 2019 as part of its annual Pavement Maintenance Conditions and Funding Needs and Strategies Report.

Traffic Safety Devices

Traffic Signals

The Traffic Signal Maintenance Team responds to approximately 2,300 service requests annually and maintains 956 traffic signal intersections (953 signals and 3 Hybrid Pedestrian Beacons – HAWKS), up from last year's 940 due to the activation of new signals. The intersections contain a variety of complex equipment such as traffic signal controllers and cabinets, video detection systems, flashing safety beacons, sophisticated communications systems, traffic conflict monitors, cameras, 86 miles of fiber, and 146 miles of interconnect cable throughout the City. DOT also maintains speed radar feedback signs (122) and changeable traffic direction signs (8). Due to past budget reductions that dropped preventive maintenance activities for much of this equipment below recommended levels, and due to continued hiring challenges which have increased the overall vacancy rate for electricians, currently only the most critical components that monitor the operation of the intersections are proactively maintained. Remaining resources are focused on responding to service requests in a timely manner. There is a one-time rehabilitation cost of \$5 million for existing equipment and \$362,000 for vehicles to support the preventive maintenance program. Additionally, there is an ongoing annual shortfall of \$3.8 million, which includes amortized replacement costs and maintenance costs for new equipment, as well as the cost to provide all preventive maintenance activities for all existing signalized intersections and anticipated system expansion.

Traffic Control and Street Name Signs

DOT's Traffic Sign Maintenance Section installs and maintains traffic control signs in the City right-of-way to regulate traffic, warn motorists (e.g. school zones), and provide other basic traffic directions. Proper maintenance of these signs is essential to the safe and efficient flow of traffic and pedestrians through the public right-of-way. This section also installs new residential street name signs and maintains traffic signal intersection street name signs. There are 90,495 traffic control signs, an estimated 26,509 residential street name signs, and 3,398 traffic signal intersection street name signs in the City of San José. The section maintains an inventory and database for all traffic control signs and overhead street name signs and has begun building the inventory for residential street name signs. This program is currently fully funded and there is no deferred maintenance or ongoing shortfall to report.

Roadway Markings

The roadway markings inventory includes roadway striping, crosswalks, stop bars and messages on street surfaces, and Raised Pavement Markers (RPMs). The purpose of these marking devices is to regulate and guide motorists, pedestrians, and cyclists to increase roadway safety, particularly during low-visibility conditions. Currently, there are 5.7 million square feet of roadway markings throughout the City. To have 100% of markings in good condition, major roadway striping should be repainted every year; arterial legends and curb painting should be

repainted on a two-year cycle; and residential areas should be repainted on a three-year cycle. Current funding only allows for a two-year repaint cycle for striping on major roads; a three-year cycle for arterial legends and curbs; and a 6-year cycle for residential areas. As a result of the deferred maintenance, approximately 3.4 million square feet (60%) are currently in good condition, which leaves 2.3 million square feet (40%) that need to be painted in order to achieve 100% of markings in good condition.

The City has approximately 513,005 Raised Pavement Markers (RPMs) – 272,128 on residential streets and 240,877 on major roadways. Currently, 100% (272,128) of Residential RPMs have exceeded their life expectancy of 8 years and are in need of replacement, as well as an estimated 13% (31,624) of arterial buttons in need of replacement. There is no ongoing preventative maintenance program to replace RPMs.

In order to achieve 100% of the total roadway markings inventory (5.7 million square feet of paint and all RPMs) in good or better condition, one-time funding of \$3.44 million is needed to complete an additional 2.3 million square feet of roadway markings and install 303,752 RPMs. Additionally, \$1.5 million is needed annually to meet all prescribed preventive maintenance cycles.

Right-of-Way Street Lighting

The City of San José owns and maintains 65,029 streetlights and streetlight poles, 26,829 of which have been converted to LED light fixtures to date. The current streetlight network contains 32,204 painted octaflute streetlight poles and 32,825 remaining lights that are either on galvanized poles, decorative poles, or are decorative uplights.

The Streetlight Maintenance Program is currently complaint-driven, addressing those outages or damaged lights that have been reported by the public. A total of 10,201 outages were repaired in FY 2017-18, which represents a 15% increase from the previous year. The increase in repairs is likely the result of the increased number of streetlight outage reports submitted through the *My San Jose* application, which makes reporting outages much easier for the public. Current resources, assuming full staffing levels, support a target service level for repairs of streetlight outages at 65% within 7 days. Unfortunately, maintaining full staffing has not been possible, and the FY 2017-18 performance was approximately 49% of reported outages repaired within 7 days. The streetlight team accomplished 61% of the repairs within 14 days despite the staffing challenges.

The 32,204 painted octaflute streetlight poles have varying degrees of paint conditions on their surface. The City previously allocated funding to refurbish old painted octaflute streetlight poles with poor paint conditions (e.g. peeling paint, exposed metal) into galvanized poles which have significantly longer life expectancies. This funding was discontinued due to budget shortfalls more than a decade ago. Refurbishing all of the 32,204 painted streetlight poles with galvanized surfaces would require a total one-time rehabilitation investment cost of \$34.2 million. Additionally, there is a one-time need of \$11.6 million to upgrade the 37,000 remaining low-

pressure sodium (LPS) fixtures to LED. These LPS lamps will no longer be available after July 2019, as the lighting industry is moving away from conventional lighting to LED-based lighting.

To date, there are approximately 26,800 LED streetlights in the City, which is just over 40% of the total streetlight inventory. Most of the LED streetlights (approximately 18,000) were converted in FY 2015-16 by the Energy Solutions Company (ESCO) program. The other LED lights were converted or installed at various times through a variety of City-sponsored and development projects. Previous LED street light conversions included smart controllers, however with advances in technology, those controllers, while still functional, are considered obsolete. DOT staff is currently working in conjunction with the City Manager's Office to identify a new controller. DOT is also currently in the process of converting approximately 1,100 lights in the Downtown and on selected major arterial roads throughout the City. Funding is included in the FY 2018-19 Adopted Budget for these projects.

Approximately 37,000 lights must still be converted to LED. Fortunately, City Measure T will provide an expected \$20 million for lighting upgrades. DOT and the Department of Public Works are developing a specific plan to leverage this and other sources of funding with the goal of converting the City lighting network to LED in the coming years.

Streetscapes

Right-of-Way Street Landscaping

There are 241.5 acres of General Fund street landscape including roadside and median islands. In the FY 2017-18 Adopted Budget, the Mayor's Beautify San Jose initiative provided one-time funding for a two-year period to address landscaping and debris removal work contractually on just over half of the City-maintained General Fund street landscape parcels. Funding for Beautify San Jose is set to expire on June 30, 2019.

In 2001, staff prepared an assessment of the median island landscape throughout the City, which identified several locations where median island landscape would be appropriate. Those locations total approximately 50 acres of new landscaping. To date, approximately 27 of those acres have been installed, leaving 23 acres still to be completed. Some of the median islands are constructed but do not have landscaping; others require the island to be constructed. There is no current funding identified for installing the remaining landscaping projects, which are estimated to total approximately \$13.8 million. Of the 241.5 acres, there are currently 78 acres of remaining high-level landscape (Type 2) with trees and shrubs, including 10.5 acres with turf. It is estimated that \$2.2 million will be needed to convert these locations to low-maintenance Type 1 designs. When combined with the procurement of vehicles for additional staff at \$1.2 million the total one-time need in Street Landscaping is \$17.2 million.

Since FY 2006-07, the average landscape acreage per maintenance worker has risen from approximately 8 acres to 30.18 acres due to resource reductions and a growing inventory. In FY 2000-01, the condition of the City's street landscapes reached their peak in terms of condition, with 86% in good or better condition. Due to budget reductions since that time, conditions

declined to 51% in good condition in FY 2016-17, but the overall landscape condition rating improved to 77% in FY 2017-18 with the addition of the Beautify San Jose program. DOT is proposing 7.5 acres per worker as the desired baseline staffing that is needed to maintain Type 1 landscape in good condition, and 5 acres per worker for Type 2 landscape, with a desired target of 90% of all landscapes maintained with generally funded resources in good or better condition. This represents an ongoing annual shortfall of approximately \$4.2 million. The other components of the ongoing shortfall in the Landscape Maintenance Program include an estimated annual need of \$572,000 to renovate 7.5 acres per year of landscape (replacing dead or damaged trees and shrubs and irrigation systems), and \$56,000 for weed abatement spraying for concrete islands. Although the \$4.2 million ongoing annual shortfall is an accurate projection of future needs, it has been reduced over the past two years by \$1 million to account for the Beautify San Jose funding that has addressed some of the deferred needs.

Stormwater Treatment Control Measures (TCMs)

To comply with the Municipal Regional Permit (MRP) as issued by the State Water Resources Control Board, the City has begun to require the design and construction of stormwater treatment control measures (TCMs) on every new development project that installs over 2,000 square feet of impervious surface. TCMs include hydrodynamic separators, bioretention basins, biotreatment cells, flow-through planters, tree well filters, subsurface infiltration systems, detention basins, and pervious pavement. New development in the public right-of-way now triggers required "green street" designs to ensure that contaminants and sedimentation are removed from stormwater runoff before the water enters the storm sewer system. As mandated by the MRP, the City is required to provide a high level of landscape management and maintenance services on a regular and prescribed basis to ensure functionality of the TCMs that are installed within the public right-of-way.

To date, DOT has accepted 13 public stormwater assets located throughout the City. These assets include a total of 139 biotreatment areas (34,500 square feet of landscape), one detention basin (54,000 square feet), three bioretention basins (12,500 square feet), 13,000 square feet of riparian mitigation landscaping, two pump stations, 10,000 square feet of general landscaping, 4,500 square feet of subsurface infiltration systems, and 13 tree-well filters. DOT received funds in the FY 2017-18 budget process for increased maintenance costs, repairs and ongoing maintenance of new facilities, and as a result the program is currently fully funded and there is no deferred maintenance or ongoing shortfall to report.

Street Trees

The City of San José's community forest consists of public trees as well as those trees that are on private property. There are an estimated 252,564 street trees within the public right-of-way under the jurisdiction of the Department of Transportation. Of those, 19,197 trees are in areas which are maintained by the City, such as median islands and roadside landscapes. In addition, there are an estimated 75,098 vacant street tree planting sites, 880 of which are on City-maintained parcels.

The San José Municipal Code requires property owners to maintain street trees adjacent to their properties. The City is a major property owner and, therefore, has the responsibility to prune and maintain street trees adjacent to its properties. It is estimated that \$1.9 million in one-time funding is needed to bring all existing City-maintained trees into good condition, and an additional \$708,000 is needed one-time to plant trees in existing City-maintained plant-able sites.

Ongoing annual funding of \$383,900 is needed to maintain a 5-year pruning cycle and tree replacement needs for the 19,197 City-maintained trees. With a current base budget funding level of \$69,000, that leaves an annual ongoing shortfall of \$384,000, which includes \$16,000 per year to update the street tree inventory for City-maintained trees and \$15,000 per year to plant vacant tree sites.

Sidewalks/Curb & Gutter/ADA Compliant Curb Ramps

Per the City's Municipal Code, property owners are responsible for the cost of repairs for sidewalks and curb & gutter adjacent to their property. The City does not have a curb & gutter inventory, but it is estimated that there is approximately \$39.1 million worth of existing needed repairs throughout the City, based on a 2% sampling of curb & gutter conducted in 2001. Additionally, while there is no actual inventory of sidewalks, it is estimated that there are 4,500 miles of sidewalk in various widths from 5 feet to 13.5 feet, which is based on the number of centerline miles of street. The rate of sidewalk damage is not known; however, having completed a tree inventory in 2015, over 19,000 parcels were brought to the attention of City staff, indicating that a significant body of work exists and has yet to be noticed or reported by residents. It is estimated that, under the current sidewalk repair policies, approximately 5,000 sidewalk locations will be repaired each year.

The City's current Americans with Disabilities Act (ADA) Sidewalk Transition Plan includes a collection of programs, administrative procedures, and design standards that support the implementation of accessible public sidewalks for people with disabilities. In recent years, the City has spent an average of \$5.2 million to construct ADA compliant curb ramps. Additionally, the City installs or retrofits ramps along corridors where paving projects occur, as required by the ADA.

In 2017, DOT worked with a consultant to provide a detailed analysis of the City's ADA ramp inventory to determine where ramps were missing or not in full compliance with the most recent ADA standards. The collected data was refined and analyzed in 2018, providing DOT with the most comprehensive update to its ADA ramp inventory to date. Using a combination of automated and manual data collection processes, the consultant determined that there are 29,876 locations that have been identified where ADA curb ramps should exist. Of these locations and accounting for recent construction, 6,625 currently have ADA compliant ramps. Of the remaining 23,251 locations, 6,191 ramps are missing, 12,594 ramps exist but have significant barriers to mobility as defined by the ADA and must be retrofitted or replaced, and 4,466 require retrofit but are a lower priority because they provide fewer barriers to mobility. It is estimated that a total of \$162 million is required to install missing ramps and to bring existing ramps to current standards.

The City's ADA Transition Plan will bring all ADA ramps up to the most recent standards by 2040 through existing and newly acquired funding streams. The backlog will decrease as work is performed each year and there is no expected annual shortfall.

Missing Sidewalks

Although there is no complete assessment of missing sidewalks throughout the City, DPW and DOT staff are compiling locations of missing sidewalk as inspection staff becomes aware of them. The existing data, although not comprehensive, indicates a total of 118 miles of missing sidewalk in the City. Some notable locations include Alviso, Santa Clara County pockets annexed to the City, and certain areas where the design standards differed from those of today (North San Jose, portions of Almaden Valley hillside areas, and industrial areas).

Although the City of Alviso consolidated with the City of San José in 1968, the area continues to be deficient in a number of infrastructure categories, including sidewalks, curb and gutter, street lighting, and street trees. Deficient streets include portions of El Dorado, Moffat, Liberty, Liberty Court, Gold, Catherine, State, North First, and Spreckles.

Typical improvements that would accompany the installation of new sidewalk include storm sewers, street lighting, curb and gutter, water meter valve boxes, sewer cleanouts, and street trees. These additional improvements add significant cost above the cost of the sidewalk. Sidewalk installations also frequently require conform work with the existing improvements on private property.

Bridges

DOT is responsible for the maintenance of 158 National Bridge Inventory (NBI) bridges throughout the City, each of which exceeds 20 feet in length. There are an additional 78 vehicular bridges that are less than 20 feet in length and a further 20 pedestrian bridges for which DOT receives periodic service requests to repair. NBI bridges are regularly inspected by Caltrans, and DOT utilizes the reports generated from those inspections to determine the costs associated with maintaining and rehabilitating these bridges. In 2018, DOT secured an engineering consultant to inspect City bridges not classified as NBI and generate a list of deficiencies to add to the deferred maintenance backlog. Through this process, DOT added 16 non-NBI bridges to its inventory and received a comprehensive report of their conditions. Much of the increased backlog resulted from this information, yet this critical process provided DOT with its best and most accurate information pertaining to bridges it has ever possessed.

Currently, there is a one-time backlog of \$131 million to replace and rehabilitate 26 bridges that have been identified by Caltrans to be structurally deficient or functionally obsolete and provide needed but not urgent corrective and preventive maintenance to 80 NBI and non-NBI bridges. This backlog will benefit from the receipt of \$20 million in Measure T funds which can be further leveraged to receive grant funding at the state and federal level, though the full extent of work and potential impact to the backlog is not yet known.

If all rehabilitation and replacement work were accomplished, DOT estimates that it would require approximately \$250,000 annually to perform routine inspection, cyclic preventative maintenance and condition-based corrective maintenance on its NBI and non-NBI bridges based on current unit prices. The City currently allocates \$100,000 for bridge maintenance. Aside from City dollars, the Federal Highway Bridge Preventative Maintenance Program (BPMP) grant program has served as a funding source. DOT staff will continue to pursue grant funds to address the current backlog of bridge preventative maintenance and rehabilitation projects.

TRANSPORTATION INFRASTRUCTURE SUMMARY

Due to many years of budget reductions and underfunding, a one-time investment is needed in every major Transportation asset category in order to bring the assets into good condition; most have ongoing shortfalls creating further backlogs and declining asset conditions.

The table below summarizes the various assets that comprise the total estimated one-time deferred maintenance and ongoing infrastructure backlog for Transportation Infrastructure elements that are the City's responsibility to maintain.

Transportation Infrastructure Needs (in Millions)		
Transportation Asset	One-Time Funding Need	Annual On-Going Shortfall
Pavement	\$539.1	\$14.8 ^{(1) (2)}
Traffic Signals	\$5.0	\$3.8
Roadway Markings	\$3.4	\$1.5
Streetlights	\$35.8 ⁽²⁾	\$0
ADA Curb Ramps	\$162	\$0
Trees	\$2.6	\$0.4
Landscaping	\$17.2	\$3.2
Bridges	\$111.0 ⁽²⁾	\$0.15
Missing Sidewalk	TBD	TBD
Total	\$876.1	\$23.85

⁽¹⁾ The annual shortfall of \$14.8 million is based on obtaining the VTA Measure B (\$19 million annually) and Measure T. There is some uncertainty as to the timing of the receipt of Measure B funds, and the Measure T implementation plan has yet to be finalized.

⁽²⁾ Include Measure T investments of \$300M for pavement over 10 years, \$10M for streetlight, and \$20M for bridges

San José/Santa Clara Regional Wastewater Facility

Facility Description

The San José-Santa Clara Regional Wastewater Facility¹ (RWF) is a regional wastewater treatment plant (Plant) serving eight South Bay cities (some as members of a district) and two unincorporated districts:

- City of San José
- City of Santa Clara
- City of Milpitas
- Cupertino Sanitary District
- County Sanitation District 2-3 (unincorporated)
- Burbank Sanitary District (unincorporated)
- West Valley Sanitation District
(Campbell, Los Gatos, Monte Sereno, and Saratoga)

The Plant is jointly owned by the cities of San José and Santa Clara pursuant to an agreement executed in 1959, and is administered and operated by San José, through the Environmental Services Department (ESD). ESD is also responsible for planning, designing, and constructing capital improvements at the Plant. The service area includes a population of about 1.4 million, including a diverse commercial and business sector with more than 17,000 sewer main connections.

The RWF was originally constructed in 1956 and continued to be expanded over several decades in response to a growing population/service area and to comply with increased state and federal regulations requiring higher treatment standards. The current wastewater treatment processes include screening and grit removal, primary sedimentation, secondary treatment by the activated sludge process, secondary clarification, filtration, disinfection, and dechlorination.

The RWF has an average dry weather flow design capacity of 167 million gallons per day (mgd), and a peak wet weather flow design capacity of 271 mgd. For 2017, the Average Dry Weather Influent Flow (ADWIF) and Average Dry Weather Effluent Flow (ADWEF) were 107 mgd and 78 mgd, respectively.

In addition to the original construction and subsequent treatment process expansions, several significant infrastructure investments have been made at the RWF over the past 20 years. These include: South Bay Water Recycling system (1998); Wet Weather Reliability Improvement project (2007); Sodium Hypochlorite Disinfection Facility (2011); Electrical Reliability Improvements (2004-2013); Digester Gas Storage Replacement (2016); Digester Gas Compressor Upgrades (2017); Emergency Diesel Generators (2017), and Iron Salt Feed Station (2018). However, these improvements do not fully represent the comprehensive rehabilitation needs at the RWF based on its current age and condition.

¹ The legal, official name of the facility remains San Jose/Santa Clara Water Pollution Control Plant, but beginning in early 2013, the facility was approved to use a new common name, the San José-Santa Clara Regional Wastewater Facility.

RWF Ten-Year Capital Improvement Program

Most of the RWF's infrastructure is now more than 50 years old and in need of significant rehabilitation and/or replacement. A 2007 Infrastructure Condition Assessment report (ICA) identified nearly one billion dollars in recommended improvements to address aging electrical, mechanical, and structural assets after decades of deferred maintenance and minimal capital reinvestments. As a follow on to the ICA, a comprehensive master planning process was completed between 2007 and 2010 resulting in the Plant Master Plan (PMP) Preferred Alternative that recommended comprehensive technical improvements and a land use plan for the RWF. The technical component of the PMP recommended over 100 capital improvement projects to be implemented at an estimated cost of \$2.2 billion dollars over a 30-year planning period.

The PMP Preferred Alternative was adopted, and the environmental impact report was approved by the San José and Santa Clara City Councils in November and December 2013, respectively. In February 2014, the City of San José completed a project validation process to update and prioritize the recommended projects into 33 construction packages which in turn served as the basis for the RWF Ten-Year Capital Improvement Program (CIP) estimated at \$1.4 billion. The Adopted 2019-2023 CIP includes \$894.9 million for construction projects at the RWF. Currently, there are 14 projects in feasibility or design, 1 project out to bid, and 5 projects under construction.

Funding Strategy for Capital Improvements at the RWF

Historically, the Sewer Service and Use Charge (SSUC) Fund (or pay-as-you-go cash) and contributions from the City of Santa Clara and Tributary Agencies has served as the primary revenue source for the RWF capital improvement program. In addition, long-term bonds, and State Revolving Fund (SRF) loans have also been used to finance various capital improvements at the treatment plant in the past. These include the San Jose-Santa Clara Clean Water Financing Authority (CWFA) 2009A Bonds which remains outstanding in the amount of \$16.6 million with a final maturity date of November 15, 2020; and SRF loans entered by the City (not CWFA) to finance various Plant projects totaling \$1.8 million and scheduled to be paid off by May 2019.

With adoption of the PMP and completion of the project validation process in 2013-2014, it was recognized that a long-term funding strategy would be needed to provide sustained funding for the ten-year, \$1.4 billion CIP. In June 2015, the City Council approved a Ten-Year Funding Strategy for the RWF CIP which included a combination of cash and debt financing, along with seeking low-cost State Revolving Fund (SRF) loans to the maximum extent possible. In July 2017, staff was informed by the State Water Resources Control Board that SRF funding would not be available for several RWF CIP projects due to higher-than-expected demand for SRF loans across the state. Significant changes would also have to be made to the loan agreement terms currently proposed by the State Water Resources Control Board (SWRCB) to allow the City to enter into any SRF agreements.

Going forward, the funding strategy for the City-only portion of the 10-year CIP primarily includes: (1) pay-as-you-go cash funding from the SSUC revenues, and (2) proceeds from debt issuance. Staff will also continue to monitor SRF loan opportunities, but is not actively seeking SRF loans at this time.

In October 2017, staff proceeded with obtaining City Council approval of an Interim Financing Program to finance capital improvements at the RWF. The interim financing program contemplates the use of a bank line of credit and issuance of long-term bonds in the future to supplement and/or refinance notes issued under the line of credit program. Council approved establishment of an interim financing program under a three-year contract to enable borrowing of up to a maximum of \$300 million (outstanding at any one time) to fund San Jose's portion of the RWF CIP. In the longer term, it is anticipated that bonds will need to be issued periodically to provide sufficient funding capacity for the 10-year CIP; the first bond issuance is expected to occur in 2021-2022.

Currently, there are no unfunded needs for the RWF CIP. However, it is important to note that many projects in the Adopted 2019-2023 CIP are currently in the feasibility/development phase. Staff will continue to develop and refine project scopes, schedules, and budgets on an annual basis to continually inform and update both near-term and long-term funding needs. In addition, certain factors may impact estimated project and program delivery costs such as cost escalation, bidding climate, external regulatory requirements/permitting approvals, unknown site conditions, operational/construction constraints, staffing availability, etc. Staff will continue to monitor and implement mitigation measures to the extent possible to minimize cost impacts to the projects and program.

Water Utility System

The San Jose Municipal Water System (Muni Water) includes:

- 344 Miles of Water Mains Ranging from 6-Inches to 24-Inches in Diameter
- 17 Reservoirs
- 15 Pump Stations
- 14 Wells
- 3 Fluoride Injection Stations
- Other Appurtenances including Meters, Laterals, Hydrants, Air Release Valves, and Sample Stations

Currently, there are no unfunded capital needs at Muni Water. However, Muni Water is implementing a Water Master Plan which may identify additional maintenance or infrastructure needs that require increased funding. The annual reinvestment into the system (approximately \$6.2 million) funds water well rehabilitation and construction projects, replacement of aging steel water mains, and other infrastructure improvements. Per the Municipal Code, the water utility maintains a Reserve for System Rehabilitation and Replacement (\$2.8 million) for any unanticipated capital needs. Overall, the assets are well maintained in good to excellent condition.

TRANSPORTATION AND ENVIRONMENT COMMITTEE

January 28, 2019

Subject: Deferred Maintenance and Infrastructure Backlog

Page 39

COORDINATION

This memorandum was coordinated with the following Departments: Airport, Environmental Services, Information Technology, Parks, Recreation and Neighborhood Services, Transportation, and the City Manager's Budget Office.

/s/

MATT CANO

Director of Public Works

For questions please contact Michael O'Connell, Deputy Director at (408) 535-8300.