City of Chula Vista Infrastructure Workshop

April 2nd, 2015

The Asset Management Journey

"above, below, and all around you"

"The Natural and Built Environment is the Foundation for a Sustainable Quality of Life"

Asset Management Program

- **Catching Up $**
- **Keeping Up $**
- **Moving Forward $**

ASSET MANAGEMENT PROGRAM (AMP)

Building Management System	BMS
Drainage Management System	DMS
Fleet Management System	FMS
General Government Management System	GGMS
Open Space Management System	OSMS
Parks Management System	PMS
Roadway Management System	RMS
Urban Forestry Management System	UFMS
Wastewater Management System	WMS

9 Asset Management Systems for 100 years of investments

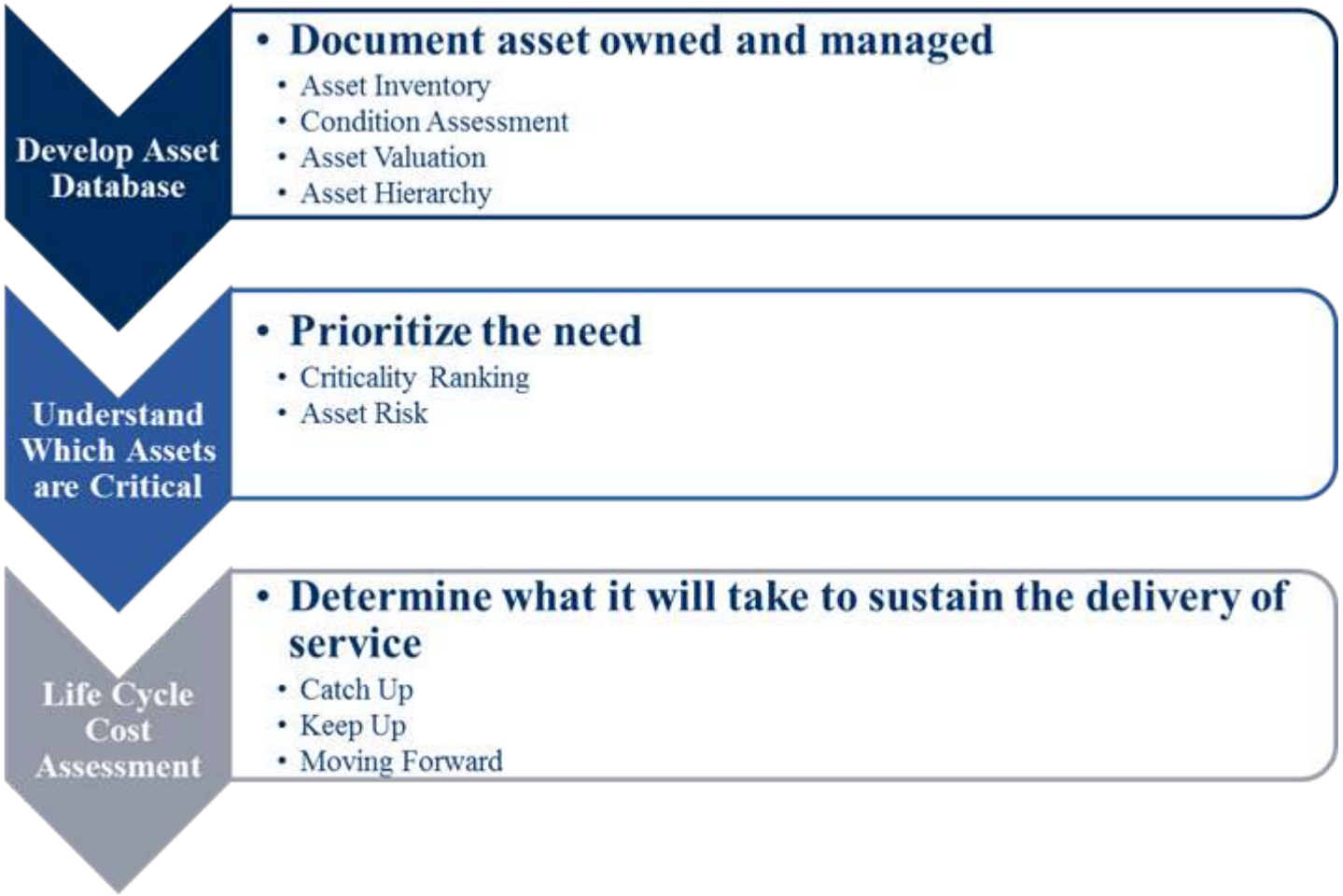
Asset Management Program Advisory Committee

Civic Engagement

reaching consensus

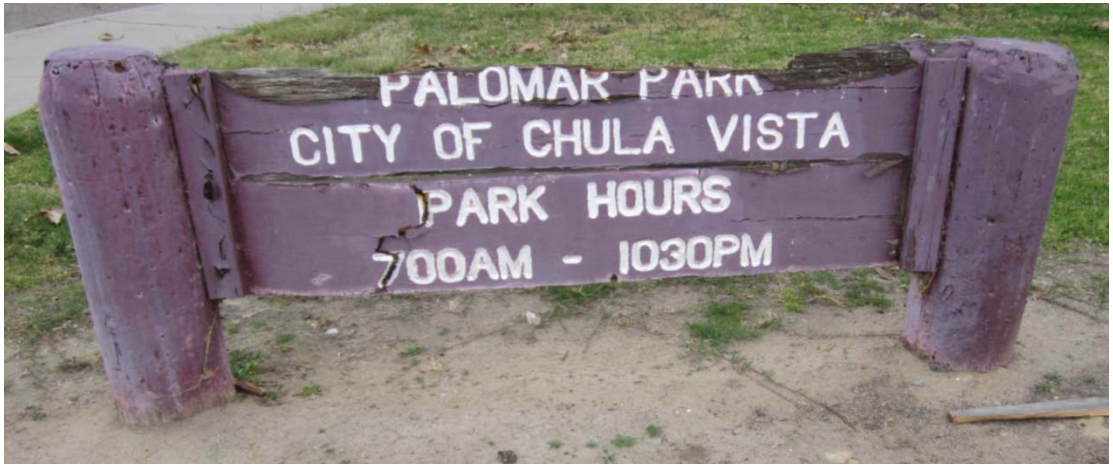
Exploring the City's Infrastructure

Asset Management Methodology

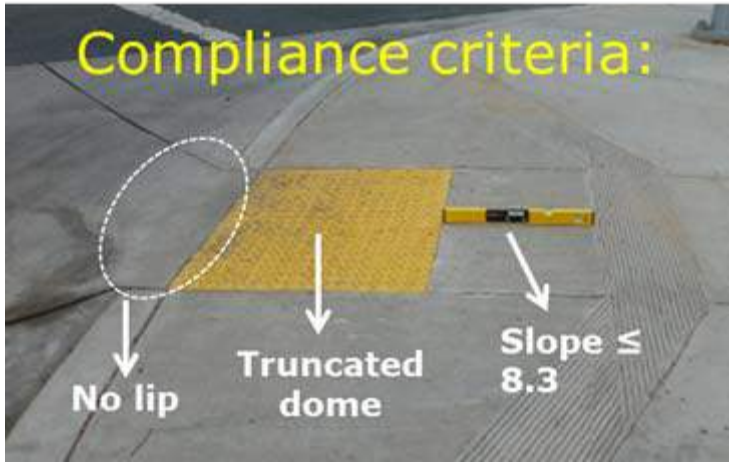


Asset Inventory / Data Collection Activities

Condition Assessment



ADA Compliance Assessment

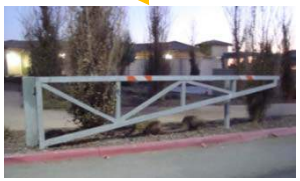


Tight stall width

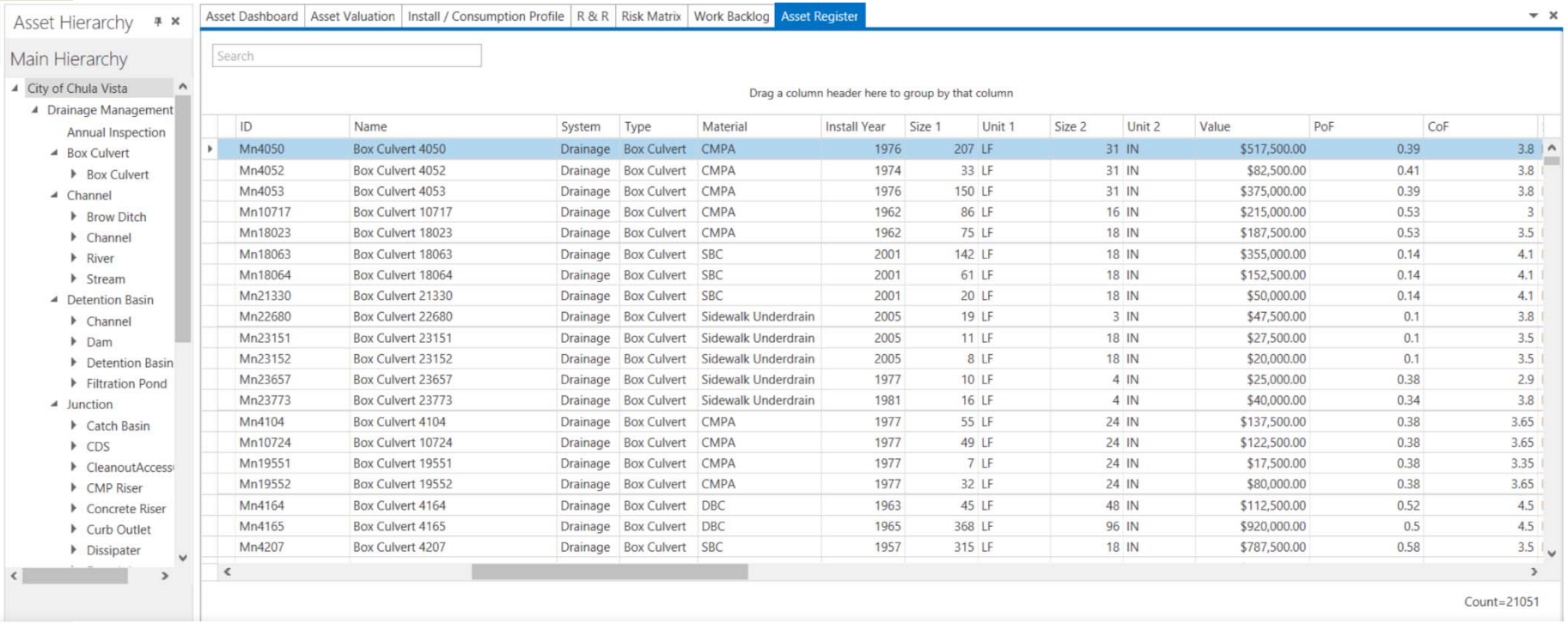
Non-compliant faucets

Needs grab rails

Asset are Mapped

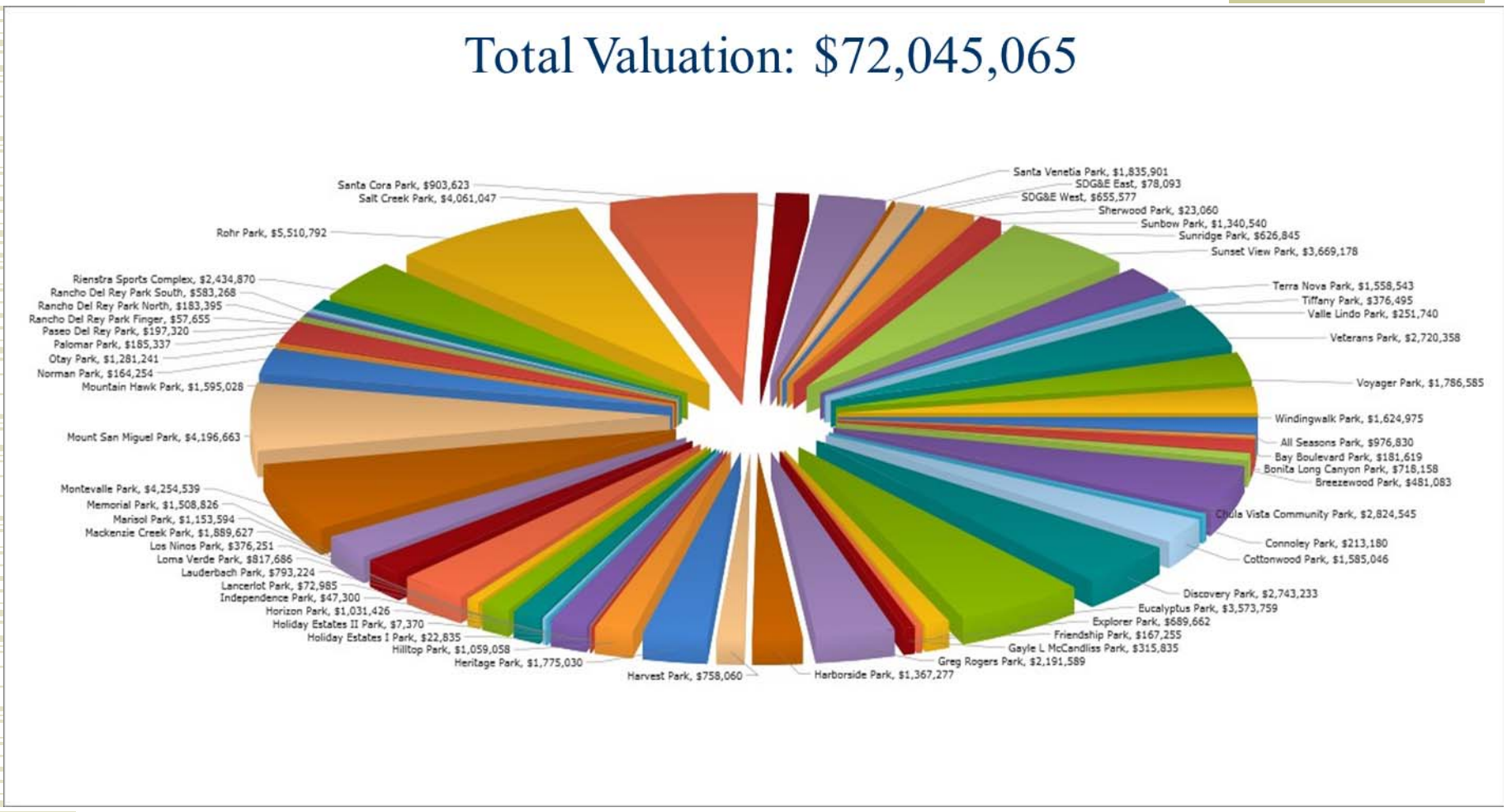


Assets are Documented and Organized

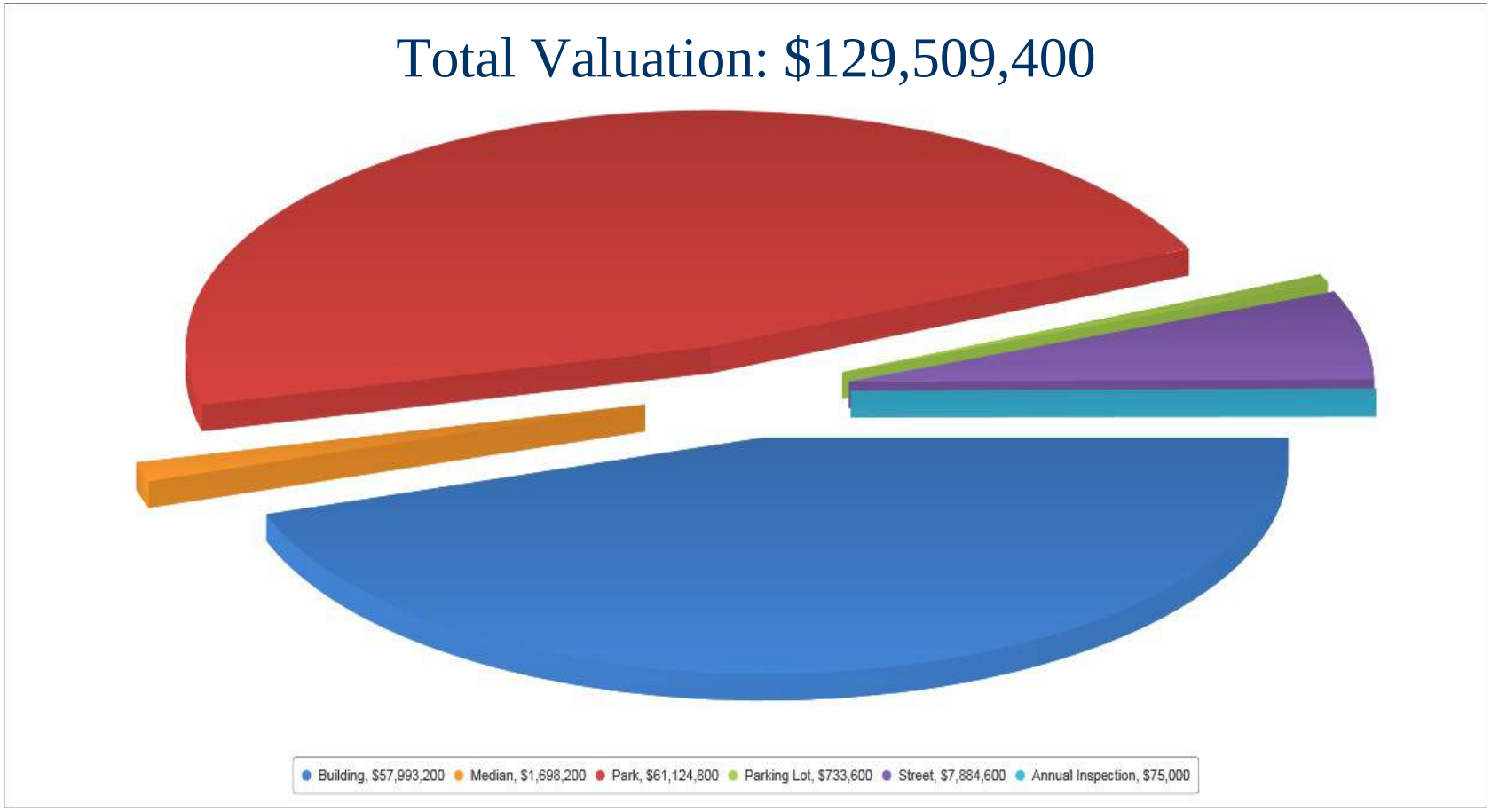


ID	Name	System	Type	Material	Install Year	Size 1	Unit 1	Size 2	Unit 2	Value	PoF	CoF
Mn4050	Box Culvert 4050	Drainage	Box Culvert	CMPA	1976	207	LF	31	IN	$517,500.00	0.39	3.8
Mn4052	Box Culvert 4052	Drainage	Box Culvert	CMPA	1974	33	LF	31	IN	$82,500.00	0.41	3.8
Mn4053	Box Culvert 4053	Drainage	Box Culvert	CMPA	1976	150	LF	31	IN	$375,000.00	0.39	3.8
Mn10717	Box Culvert 10717	Drainage	Box Culvert	CMPA	1962	86	LF	16	IN	$215,000.00	0.53	3
Mn18023	Box Culvert 18023	Drainage	Box Culvert	CMPA	1962	75	LF	18	IN	$187,500.00	0.53	3.5
Mn18063	Box Culvert 18063	Drainage	Box Culvert	SBC	2001	142	LF	18	IN	$355,000.00	0.14	4.1
Mn18064	Box Culvert 18064	Drainage	Box Culvert	SBC	2001	61	LF	18	IN	$152,500.00	0.14	4.1
Mn21330	Box Culvert 21330	Drainage	Box Culvert	SBC	2001	20	LF	18	IN	$50,000.00	0.14	4.1
Mn22680	Box Culvert 22680	Drainage	Box Culvert	Sidewalk Underdrain	2005	19	LF	3	IN	$47,500.00	0.1	3.8
Mn23151	Box Culvert 23151	Drainage	Box Culvert	Sidewalk Underdrain	2005	11	LF	18	IN	$27,500.00	0.1	3.5
Mn23152	Box Culvert 23152	Drainage	Box Culvert	Sidewalk Underdrain	2005	8	LF	18	IN	$20,000.00	0.1	3.5
Mn23657	Box Culvert 23657	Drainage	Box Culvert	Sidewalk Underdrain	1977	10	LF	4	IN	$25,000.00	0.38	2.9
Mn23773	Box Culvert 23773	Drainage	Box Culvert	Sidewalk Underdrain	1981	16	LF	4	IN	$40,000.00	0.34	3.8
Mn4104	Box Culvert 4104	Drainage	Box Culvert	CMPA	1977	55	LF	24	IN	$137,500.00	0.38	3.65
Mn10724	Box Culvert 10724	Drainage	Box Culvert	CMPA	1977	49	LF	24	IN	$122,500.00	0.38	3.65
Mn19551	Box Culvert 19551	Drainage	Box Culvert	CMPA	1977	7	LF	24	IN	$17,500.00	0.38	3.35
Mn19552	Box Culvert 19552	Drainage	Box Culvert	CMPA	1977	32	LF	24	IN	$80,000.00	0.38	3.65
Mn4164	Box Culvert 4164	Drainage	Box Culvert	DBC	1963	45	LF	48	IN	$112,500.00	0.52	4.5
Mn4165	Box Culvert 4165	Drainage	Box Culvert	DBC	1965	368	LF	96	IN	$920,000.00	0.5	4.5
Mn4207	Box Culvert 4207	Drainage	Box Culvert	SBC	1957	315	LF	18	IN	$787,500.00	0.58	3.5

Asset Valuation
(Parks)



Asset Valuation
(Urban Forestry)



Urban Forestry
Sorted by Value and Count

Total Valuation: $129,434,400 (29,264)

Tree Type	Total Valuation
EUCALYPTUS	$32,109,700
PINE	$20,568,900
PEPPER	$18,453,400
PALM	$22,245,300
SYCAMORE	$4,635,100
PEAR	$2,439,800
ASH	$2,123,200
FLAME	$2,086,700
PEPPERMINT	$1,727,300
ELM	$1,541,100
OTHER	$21,503,900

Tree Type	Total Count
PALM	3,780
EUCALYPTUS	2,507
PINE	1,964
PEPPER	1,768
PEAR	1,207
FLAME	923
JACARANDA	619
BOTTLEBRUSH	608
BOX	476
SYCAMORE	475
OTHER	14,937

Risk

Probability of Failure

Timing to Failure

Consequence of Failure

Impact of a failure
- Economic
- Environment
- Social

Pump Station Criticality

G Street	5
Agua Vista	5
PD HQ Sewer Pump	5
OTC-II Pump	3
Hilltop Pump	3
Surrey Pump	2
Corral Ct Pump	2
Civic Ctr/Old PD	2
Salt Creek	1
Parkside Dr Pump	1
Max Field Pump	1
Greg Rogers	1

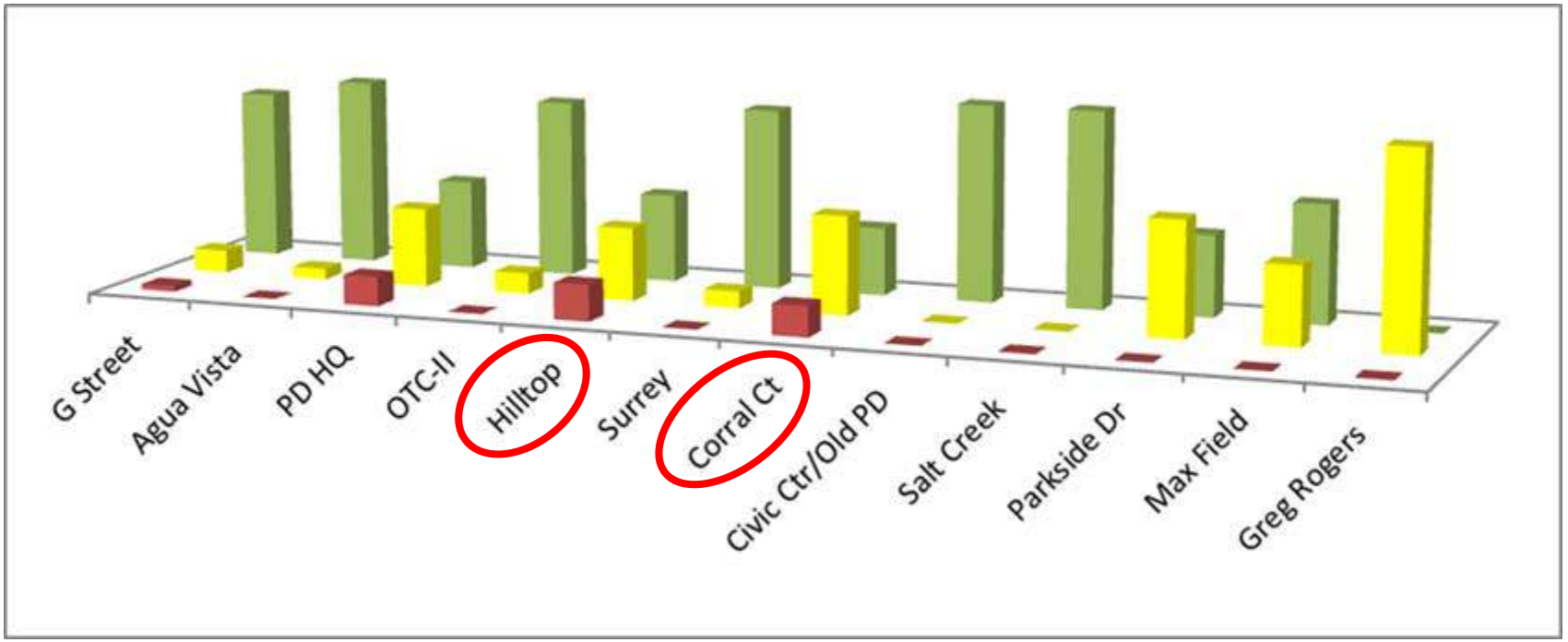
Criticality by Asset

	Class ID	Asset Class	CoF
CIVIL / SITE			
	BLD	Building	5
	STR	Structure	4
	ENC	Building - Enclosure	1
	WW	Wet Well	5
	YP	Yard Piping	5
	PAV	Pavement	1
	FNC	Fencing	1
	FM	Forcemain	5
	MH	Forcemain Manhole	1
	CO	Forcemain Cleanout	5

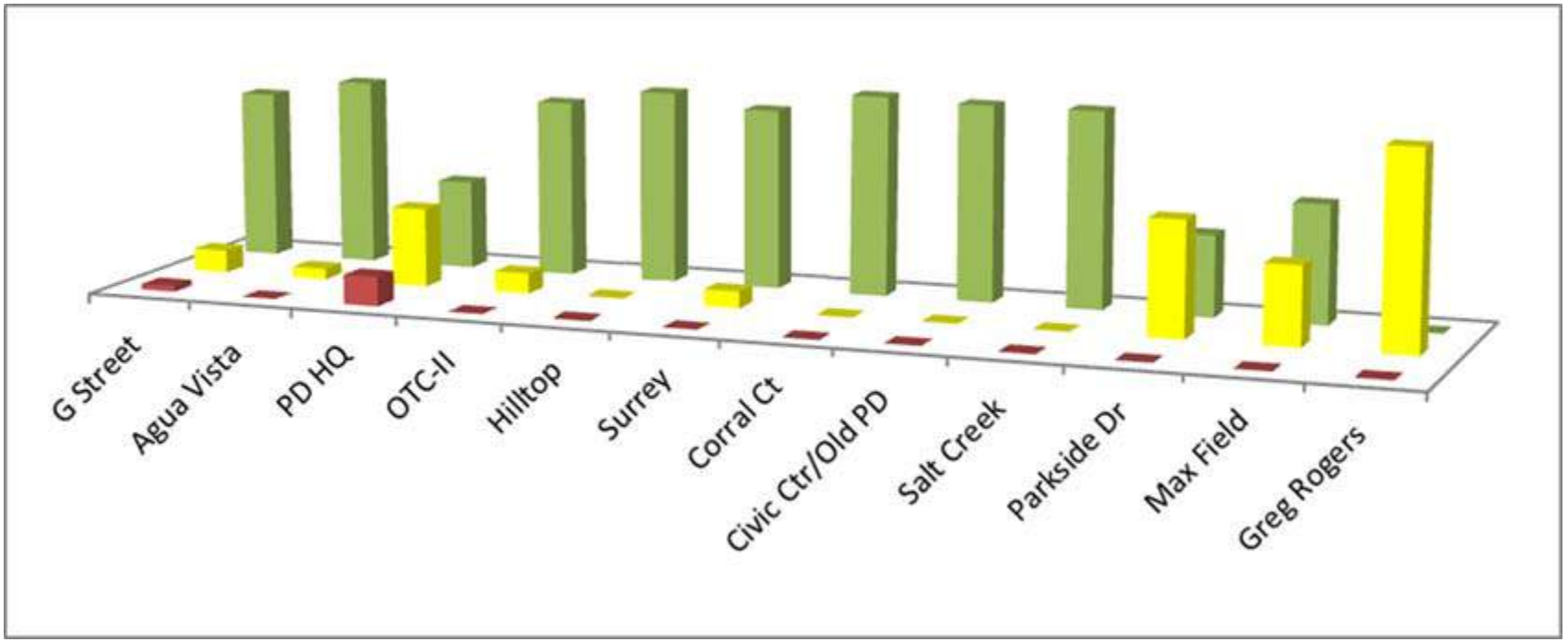
	Class ID	Asset Class	CoF
ELEC / INST			
	SCD	SCADA	3
	INST	Instruments	3
	PNL	Electric Panels	5
	MCC	Motor Control Center	5
	M	Motor	5
	SM	Motor - Small	2
	TR	Transformer	5
	TSW	Transfer Switch	4
	PLC	Programmable Loginc Controller	5

	Class ID	Asset Class	CoF
MECHANICAL			
	ARV	Air Releif Valve	2
	VLV	Valve	3
	AVA	Automatic Valve Actuator	2
	CMP	Compressor	3
	GEN	Genset	4
	CPS	Cathodic Protection System	3
	PMP	Pump	5
	SPMP	Submersible Pump	5
	HC	Hoist / Crane	1
	OTK	Tank - Outdoor	1
	SG	Sluice / Slide Gate	3

Pump Station Risk 2012



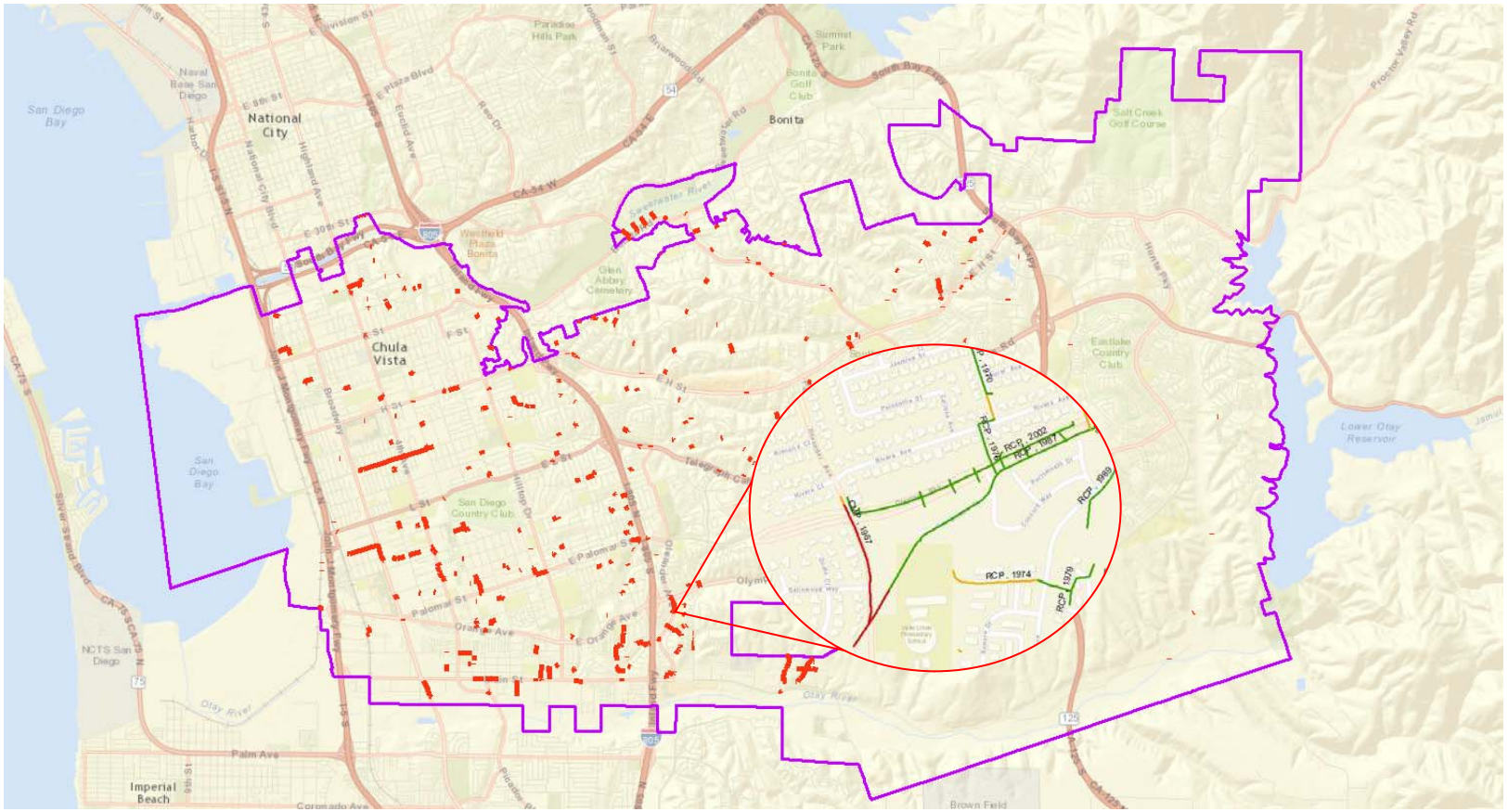
Pump Station Risk 2015



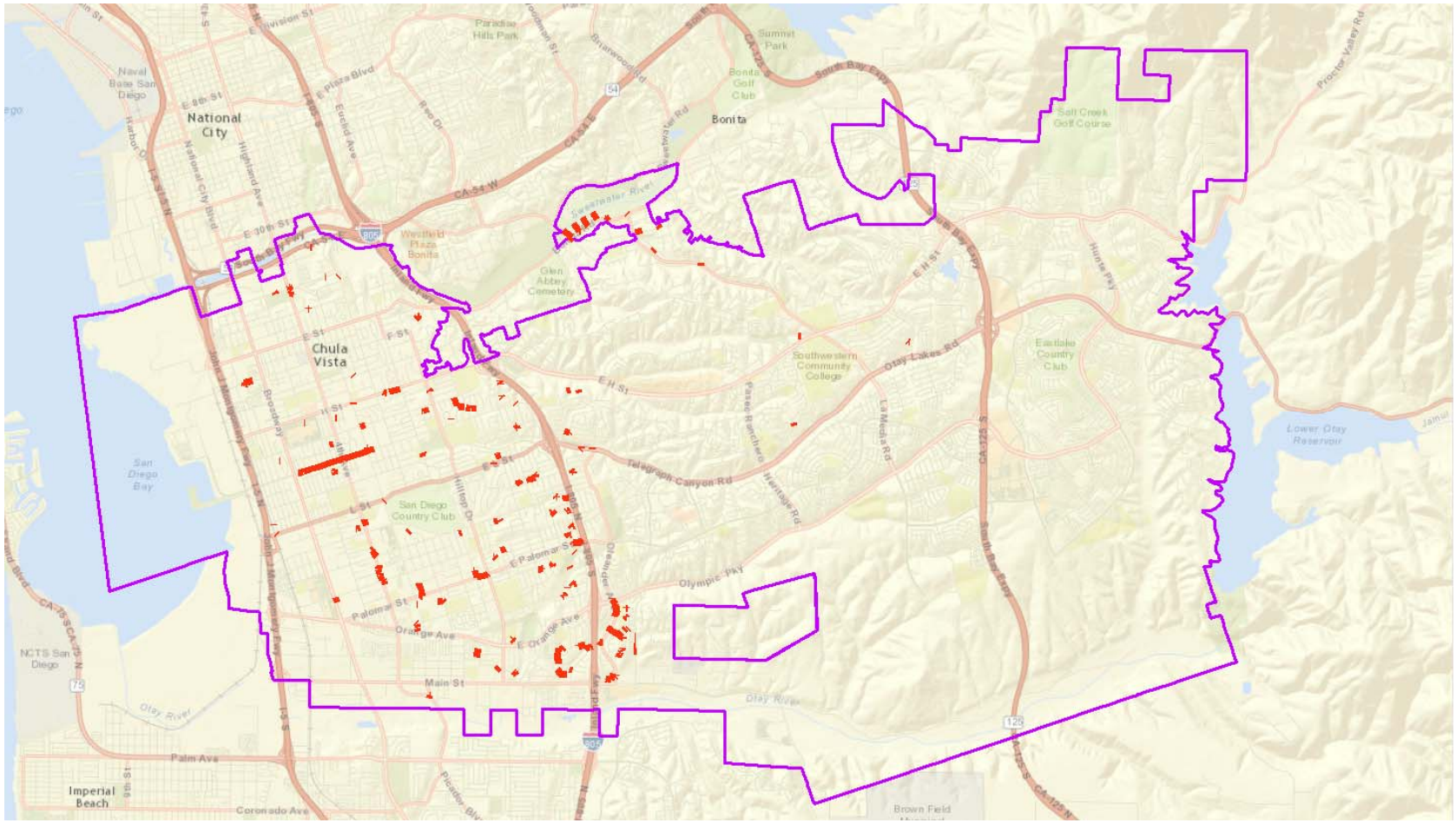
Drainage Story

- Corrugated metal pipe failure
  - Installed in 1967

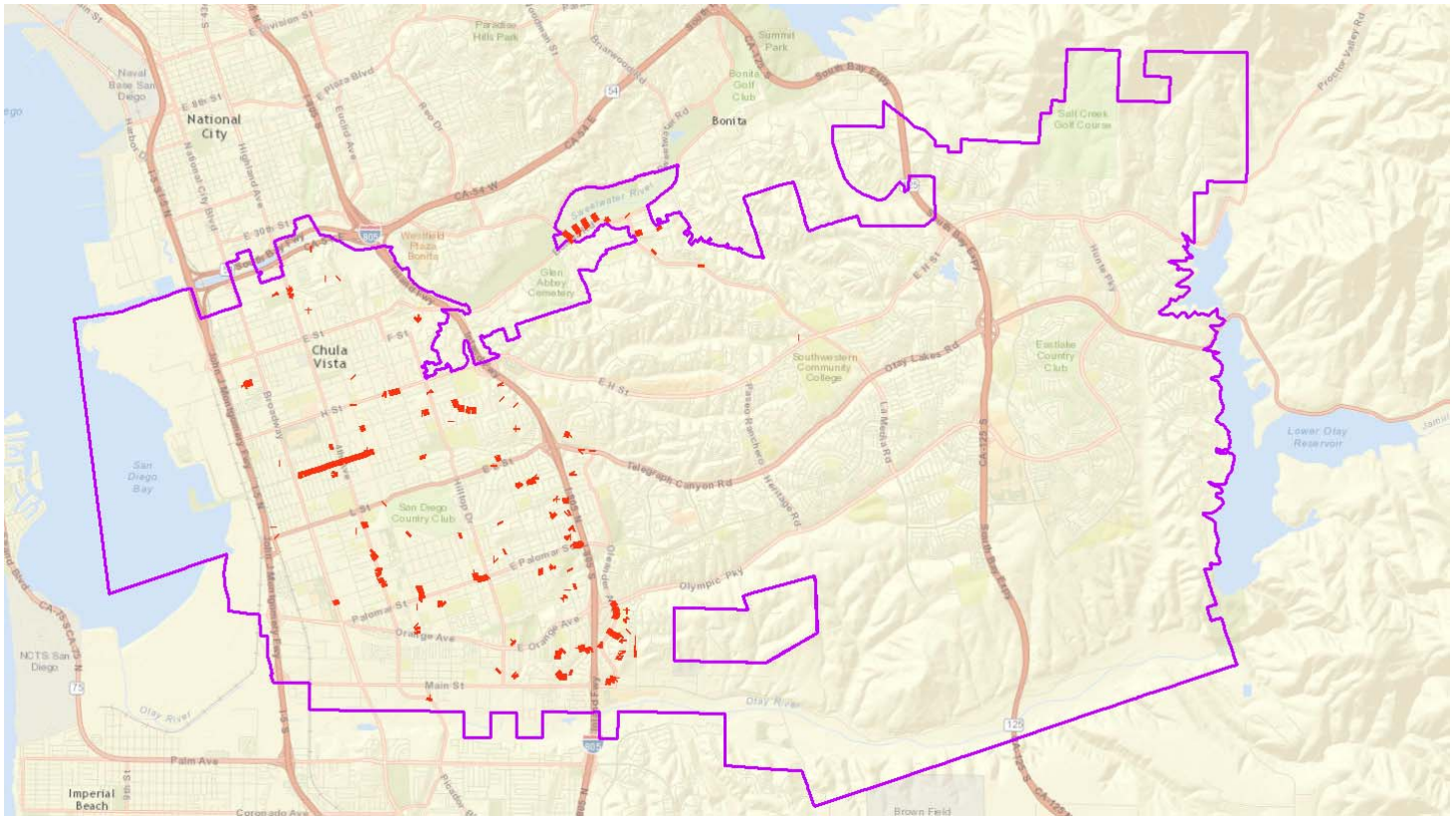
All Corrugated Metal Pipes



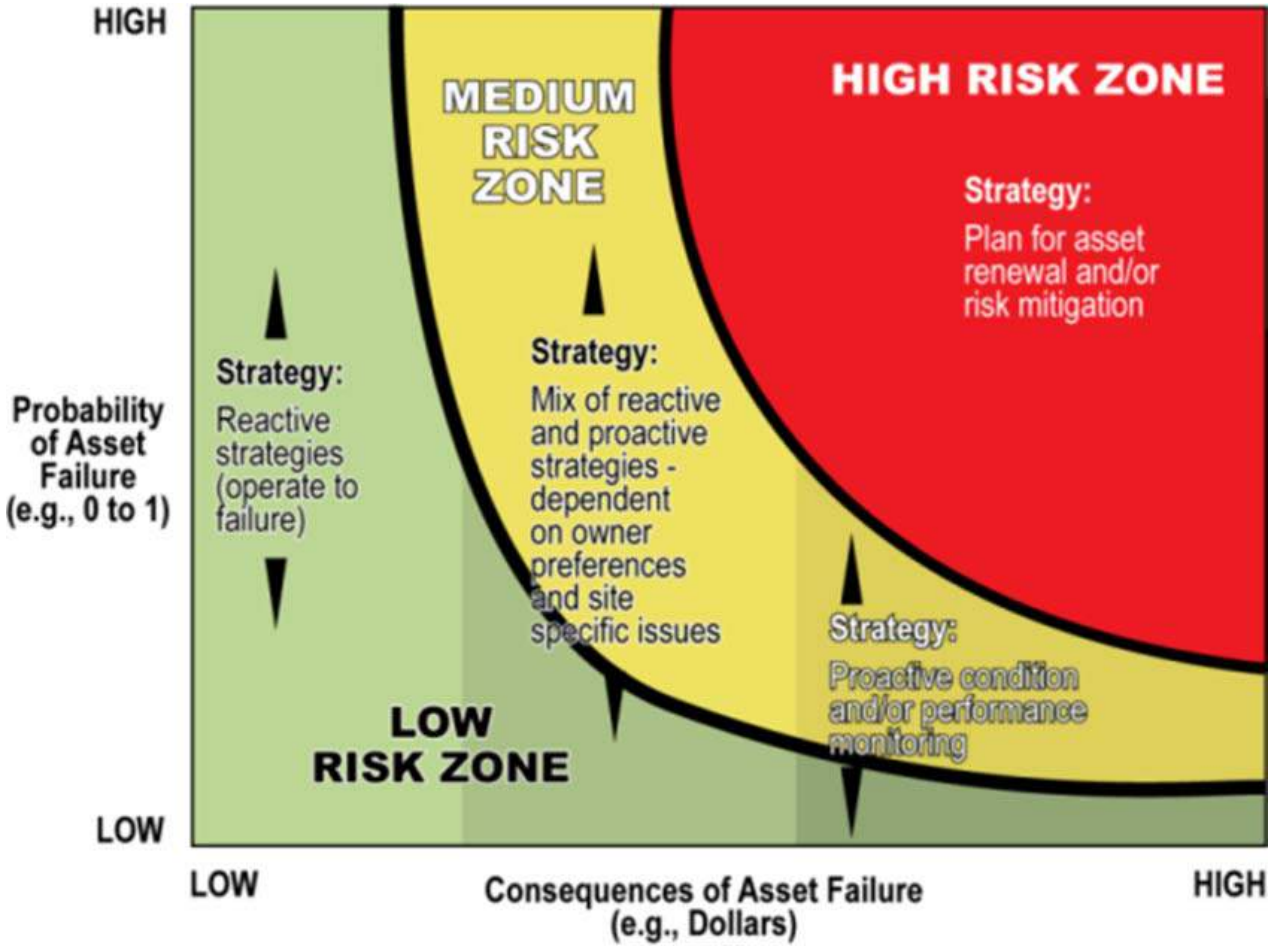
Pre-1975 Corrugated Metal Pipe



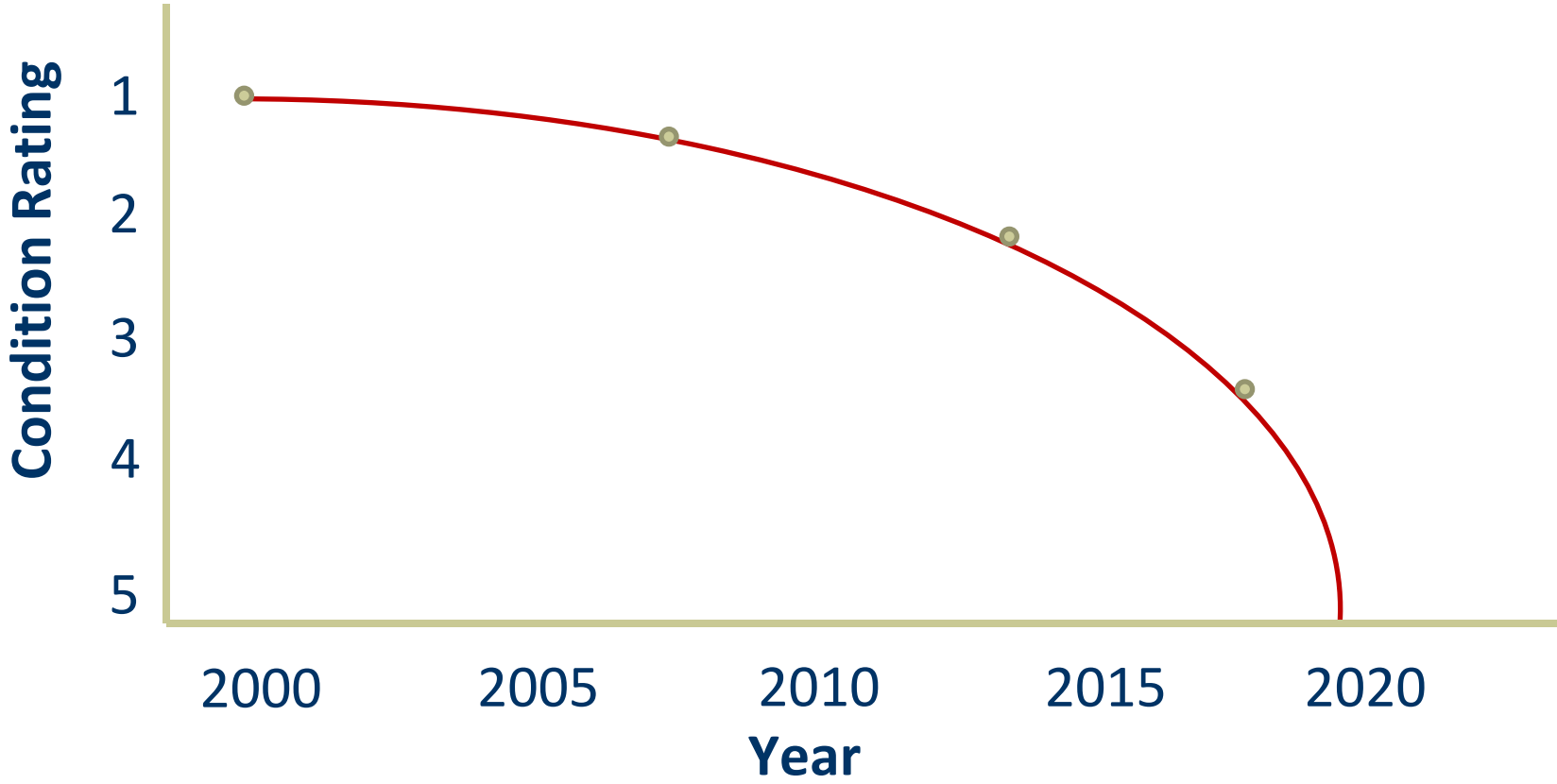
CMP in High Risk Area



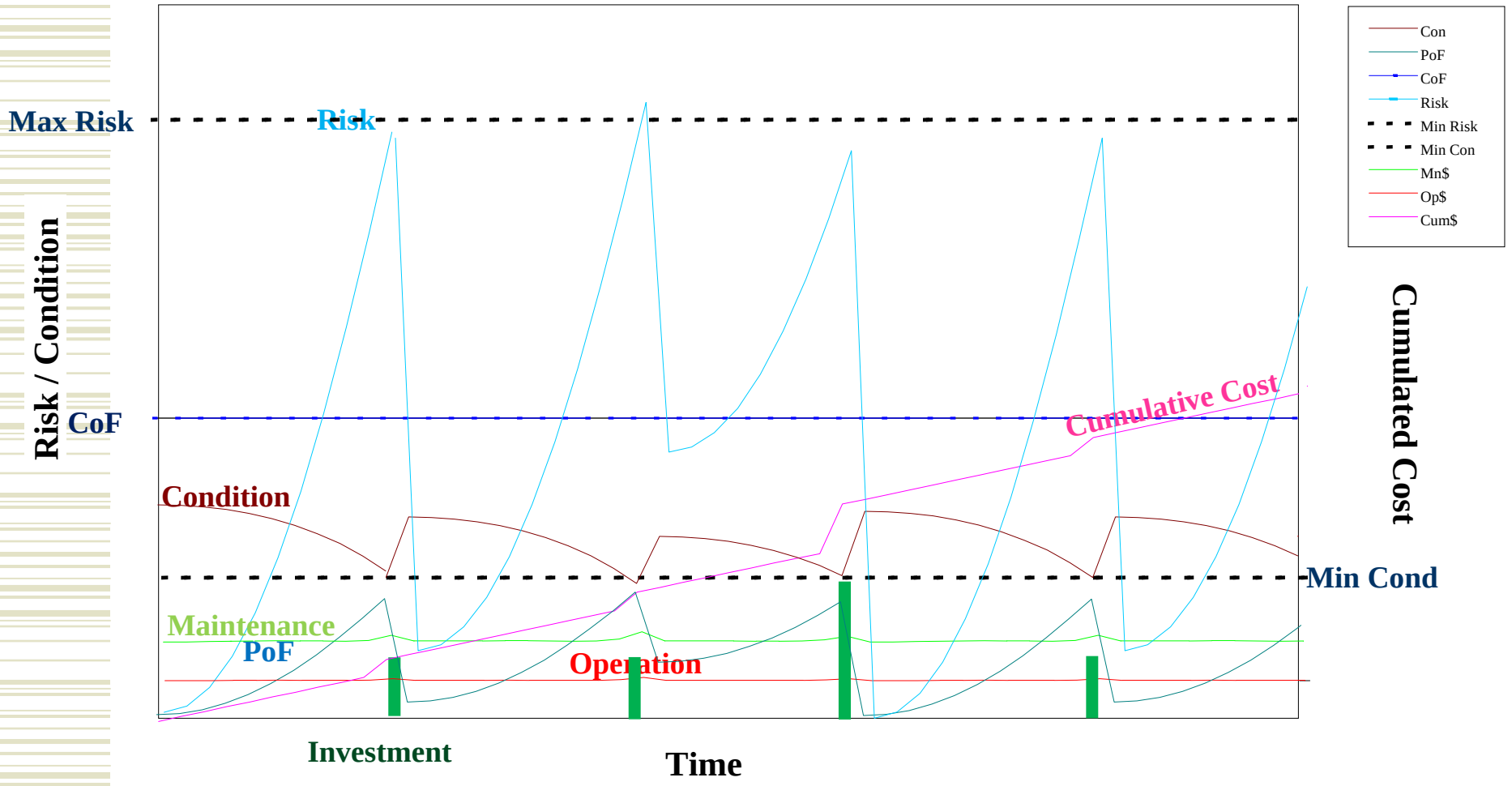
Management Strategy (Risk-Based)



Calculating the Timing to Failure



Asset Life Cycle Investment Logic



Valuation Adjustment Factors: Species

Species	Species Rating
OAK	1
PALM-DATES	1
CHITALPA	1
PEPPER	0.5
CAJEPUT	0.5
BERRY	0.5
BUSH	0.5
MYOPORUM	0.4

Oak

Palm – Dates

Chitalpa

Pepper

Cajeput

Berry

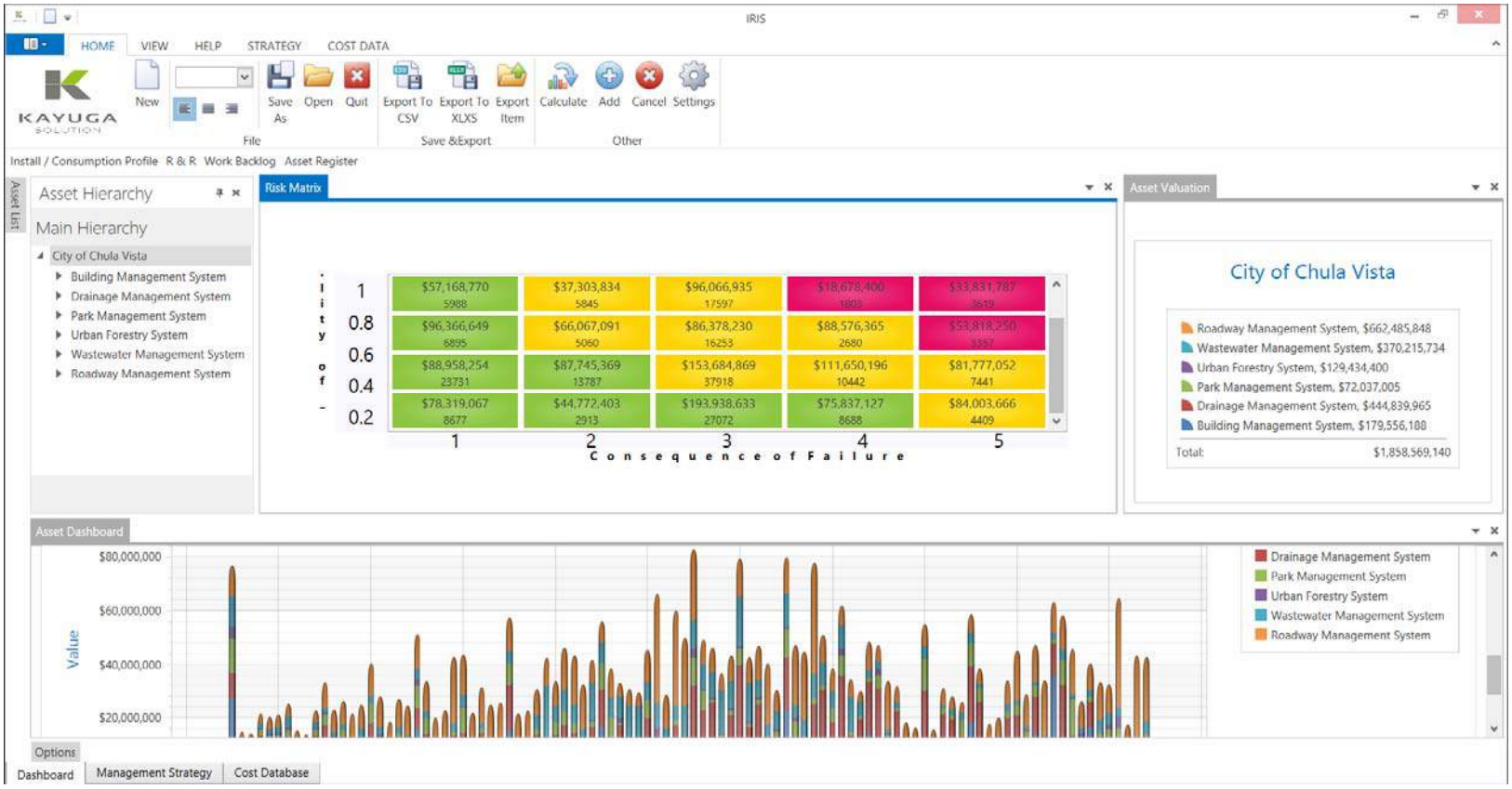
Bush

Myoporum

Life Cycle Costing Logic

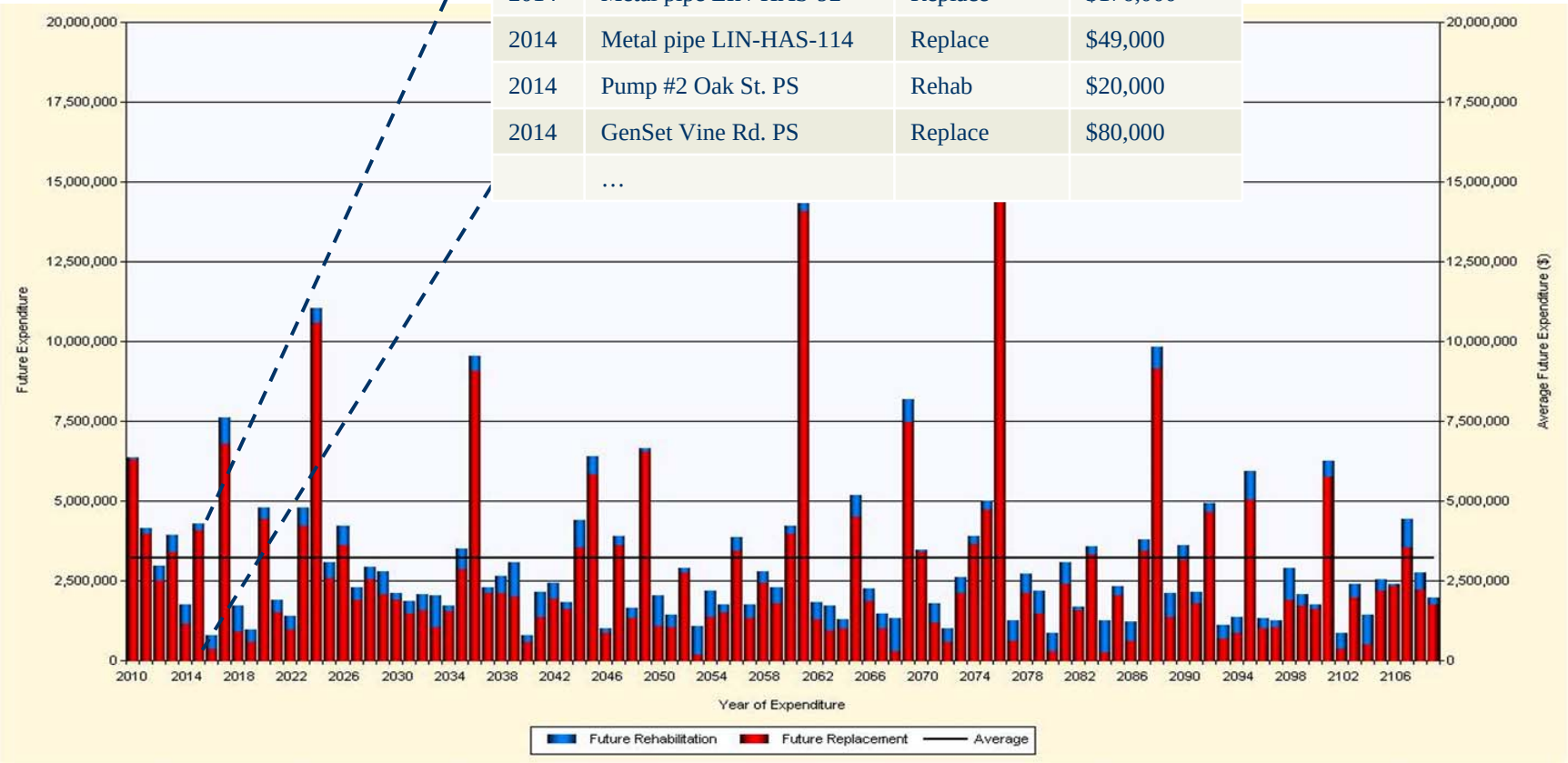
Tree Category	Life	Activity	Frequency	Cost
PALM-Queen-Parks	125	Trimming	1	$20
PALM-Fan-Parks	125	Trimming	2	$35
PALM-Dates-Parks	125	Trimming	2	$150
EUCALYPTUS-Small-Parks	125	Trimming	3	$55
EUCALYPTUS-Medium-Parks	125	Trimming	3	$140
EUCALYPTUS-Large-Parks	125	Trimming	3	$205
EUCALYPTUS-Mature-Parks	125	Trimming	3	$325
PINE-Parks	125	Trimming	3	$150
Broadleaf Tree-Parks	125	Trimming	3	$75

Asset Management Tool



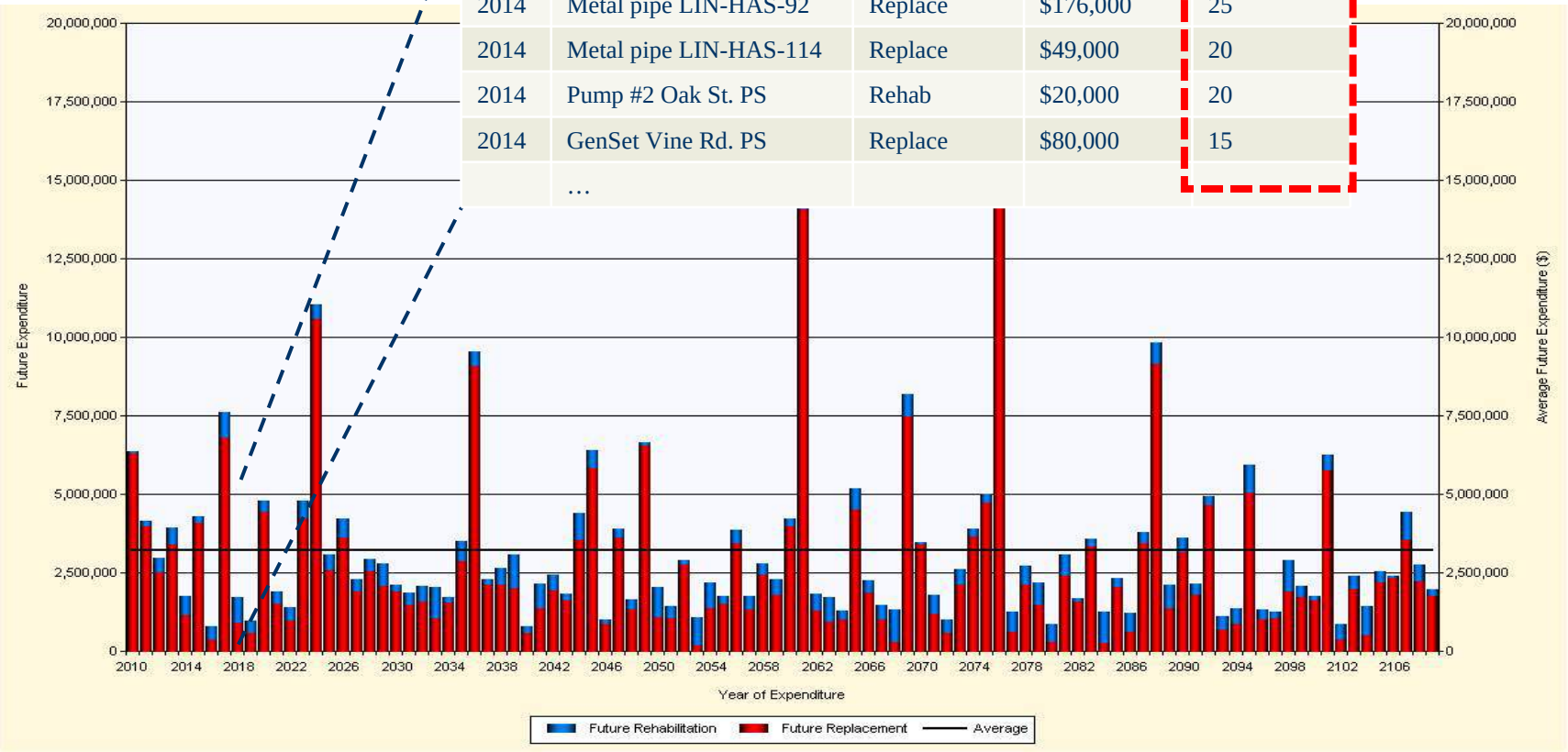
Understanding the Need (Year By Year, Asset By Asset)

Year	Asset Name	Action Type	Action Cost
2014	Metal pipe LIN-HAS-78	Replace	$340,000
2014	Metal pipe LIN-HAS-92	Replace	$176,000
2014	Metal pipe LIN-HAS-114	Replace	$49,000
2014	Pump #2 Oak St. PS	Rehab	$20,000
2014	GenSet Vine Rd. PS	Replace	$80,000
	…		

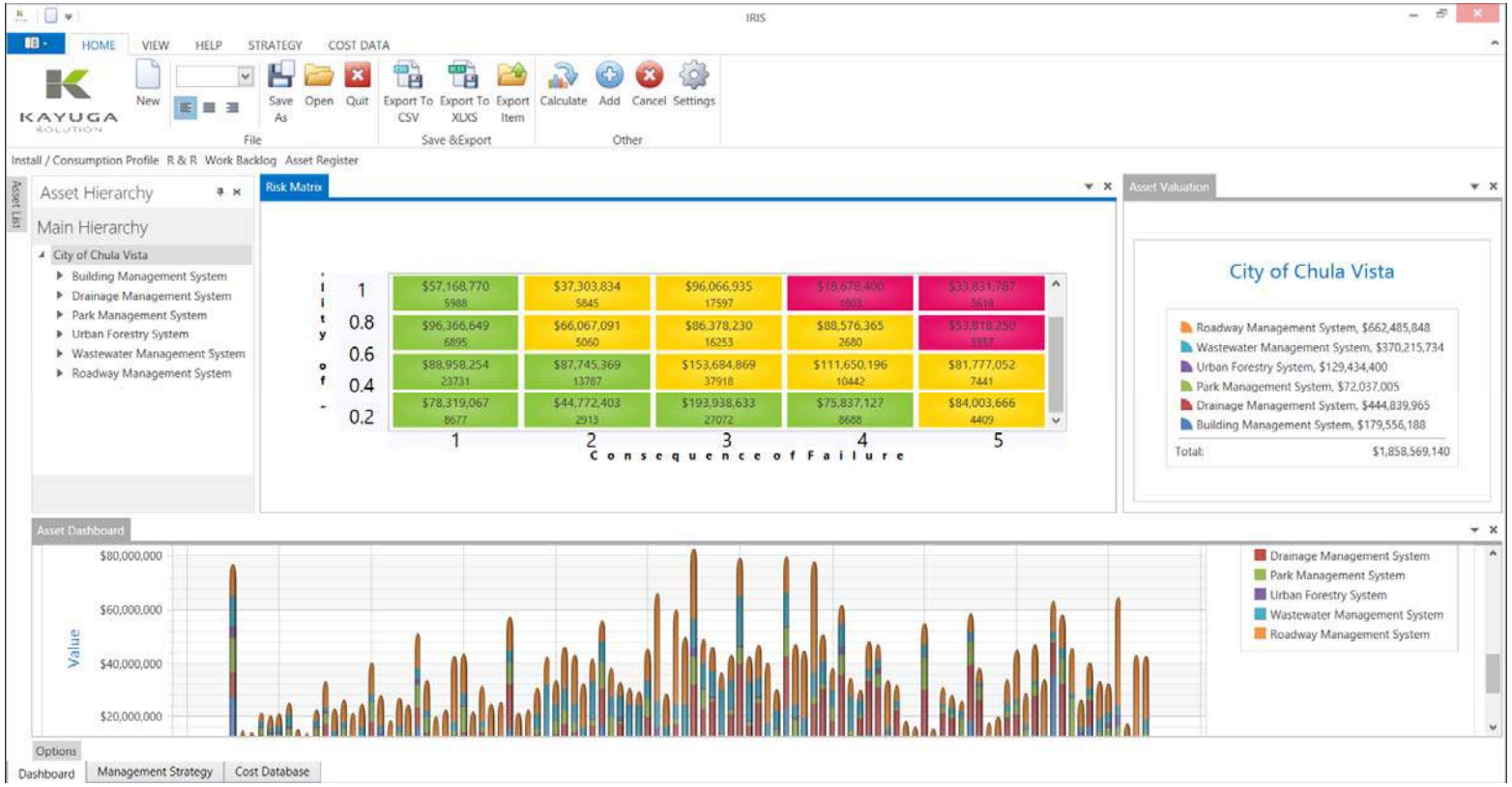


Risk-Based Prioritization

Year	Asset Name	Action Type	Action Cost	Risk Score
2014	Metal pipe LIN-HAS-78	Replace	$340,000	25
2014	Metal pipe LIN-HAS-92	Replace	$176,000	25
2014	Metal pipe LIN-HAS-114	Replace	$49,000	20
2014	Pump #2 Oak St. PS	Rehab	$20,000	20
2014	GenSet Vine Rd. PS	Replace	$80,000	15
	…			



Asset Management Tool Demonstration



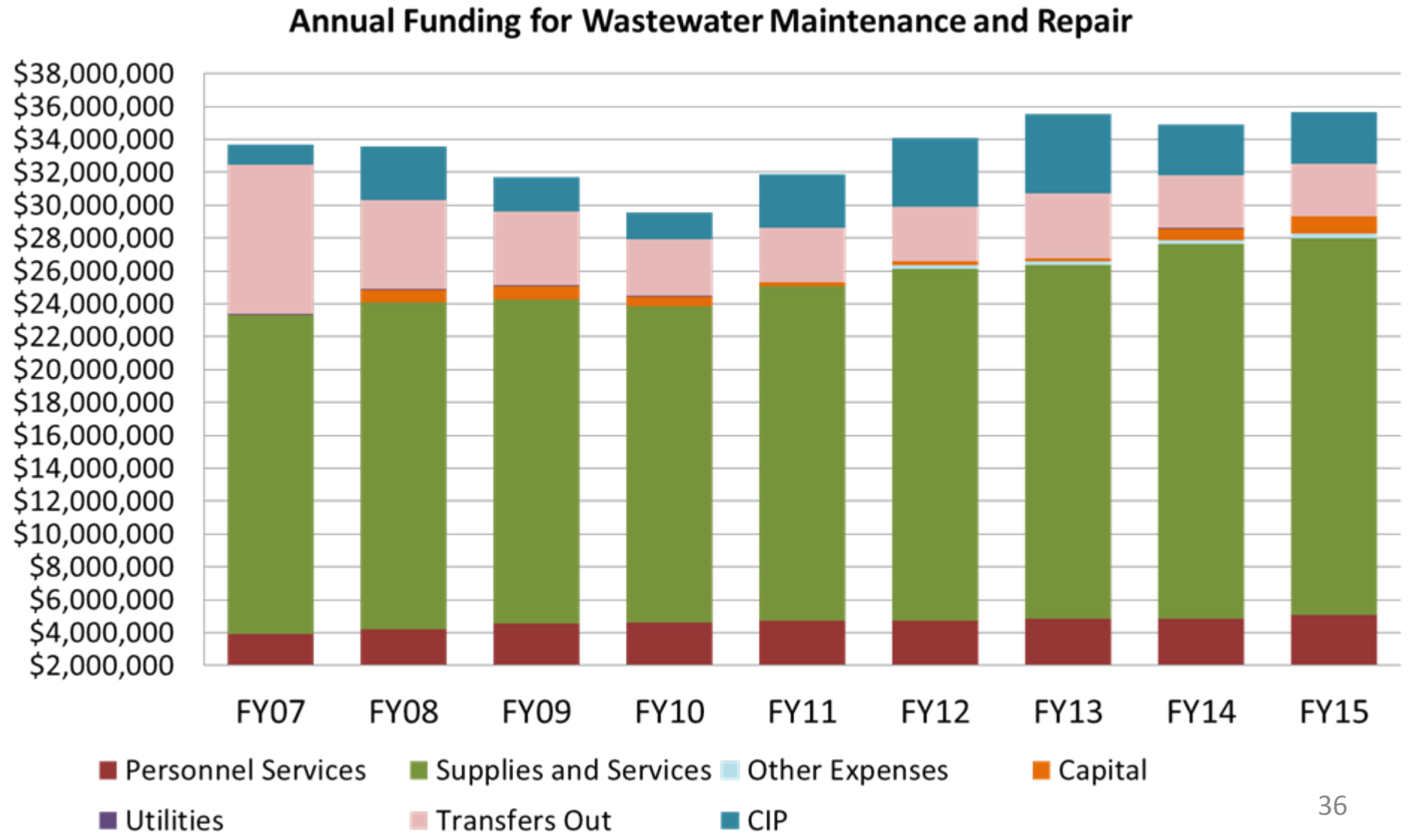
Wastewater Management System (WMS)

AMPAC Tour of South Bay Water Reclamation Plant

WMS Process Assessment

- Asset Inventory
- Condition Assessment
- Risk Assessment
- Lifecycle Costing
- Catching Up
- Keeping Up
- Moving Forward

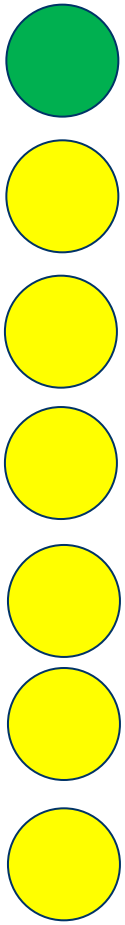
Wastewater Management System (WMS)



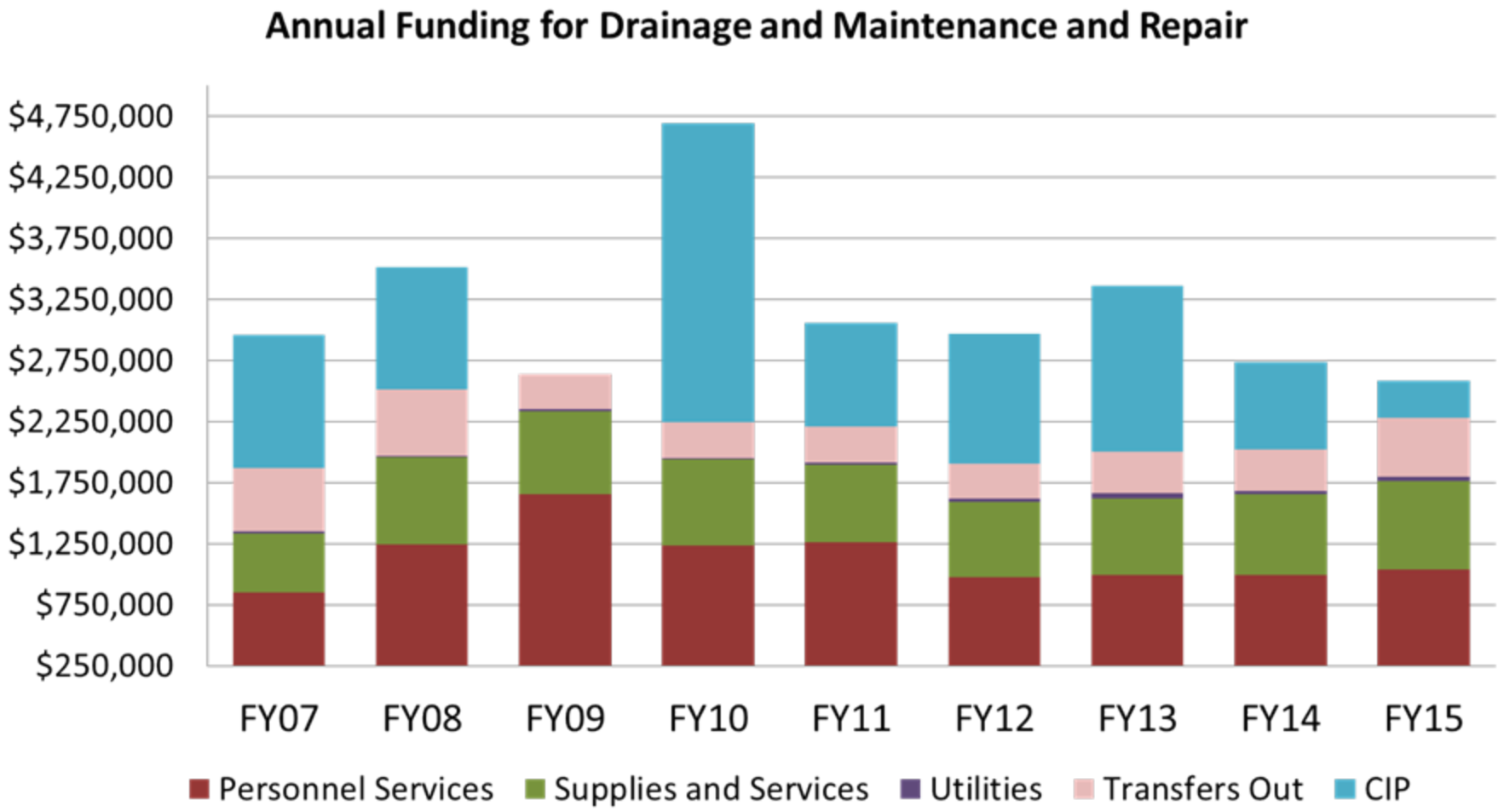
Drainage Management System (DMS)

DMS Process Assessment

- Asset Inventory
- Condition Assessment
- Risk Assessment
- Lifecycle Costing
- Catching Up
- Keeping Up
- Moving Forward



Drainage Management System (DMS)



DMS
How do we spend today?

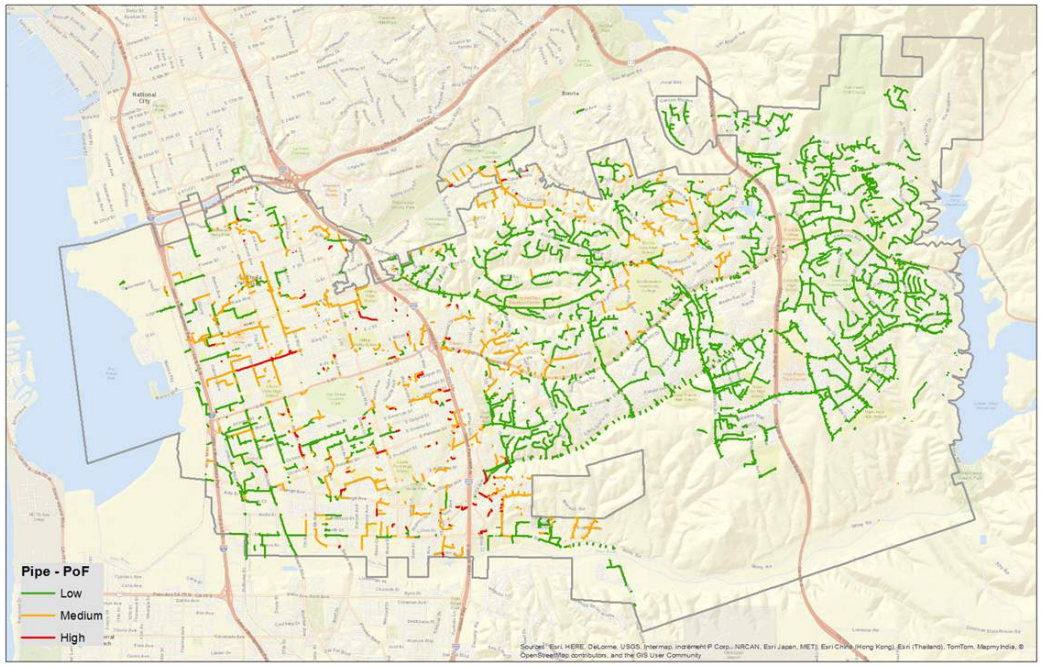
Service Requests:
Manhole open
Debris removal
Litter abatement

Routine Maintenance:
Annual Inspection
Weed abatement
Sediment removal
Invasive species removal

Restoration: **CIP**
CMP lining/replacement
RCP lining/replacement
PCC cross gutter reconstruction
PCC ADA access ramps
PCC Culvert restoration
Natural Lined Channels

DMS

- 2014 Estimated Deferred Maintenance (non CFD areas) - $80 Million (Replacement of Drainage Facilities, CMP, Canyon/Channel Erosion, etc.)

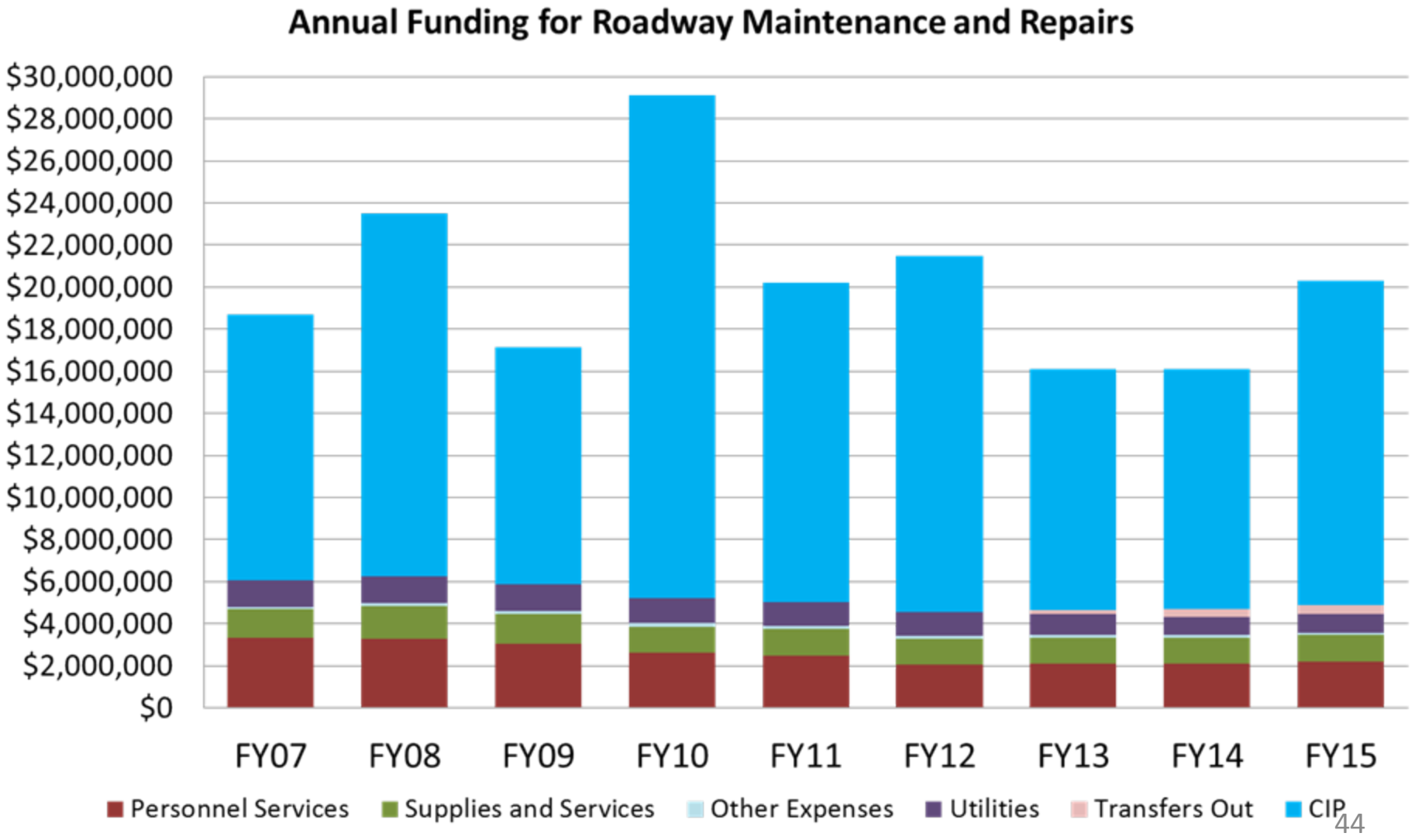


Roadway Management System (RMS)

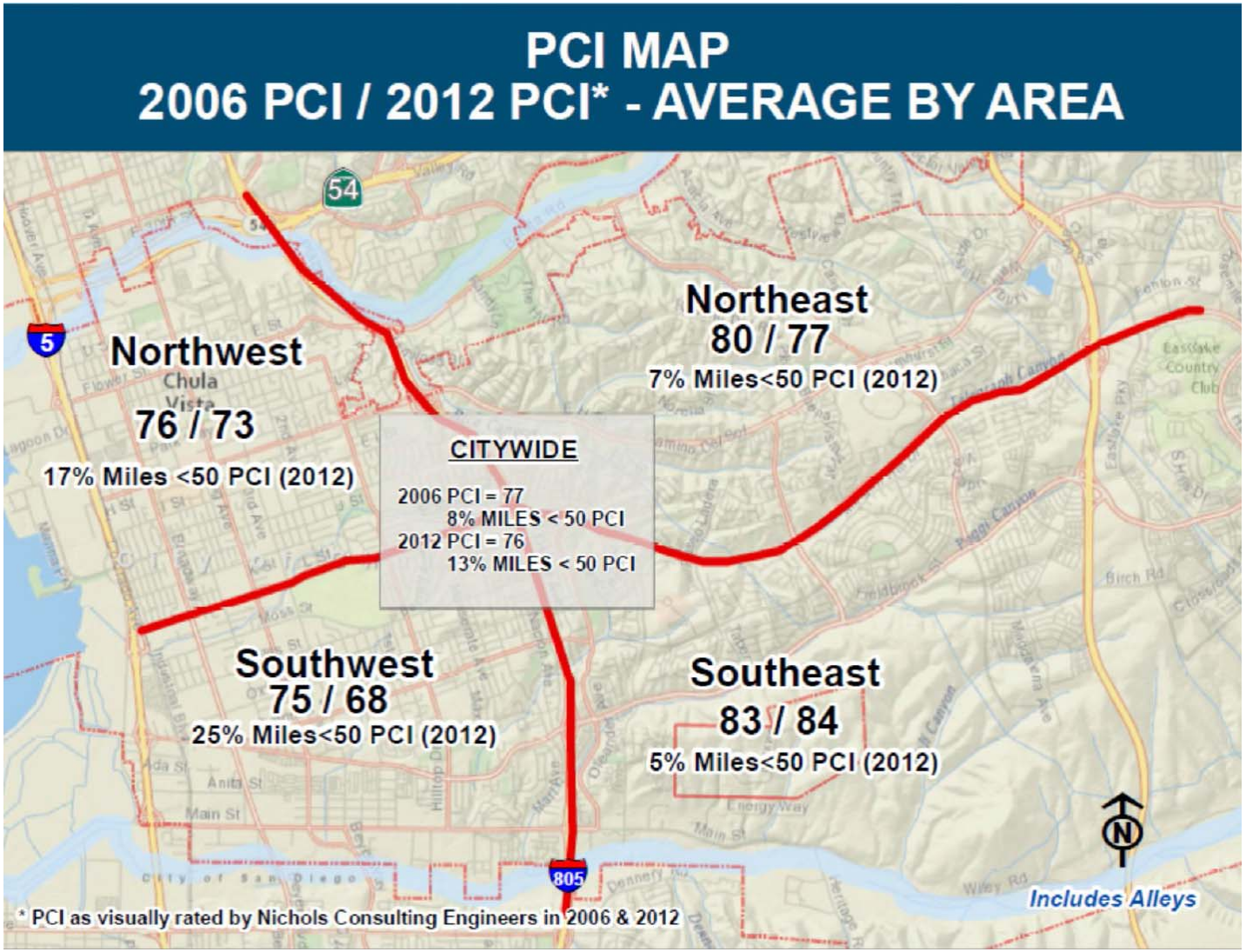
RMS Process Assessment

- Asset Inventory
- Condition Assessment
- Risk Assessment
- Lifecycle Costing
- Catching Up
- Keeping Up
- Moving Forward

Roadway Management System (RMS)



Pavement Condition



RMS
How do we spend today?

Service Requests:
Pothole repair
Debris removal
Litter abatement
Graffiti abatement
Fence/Guardrail repair

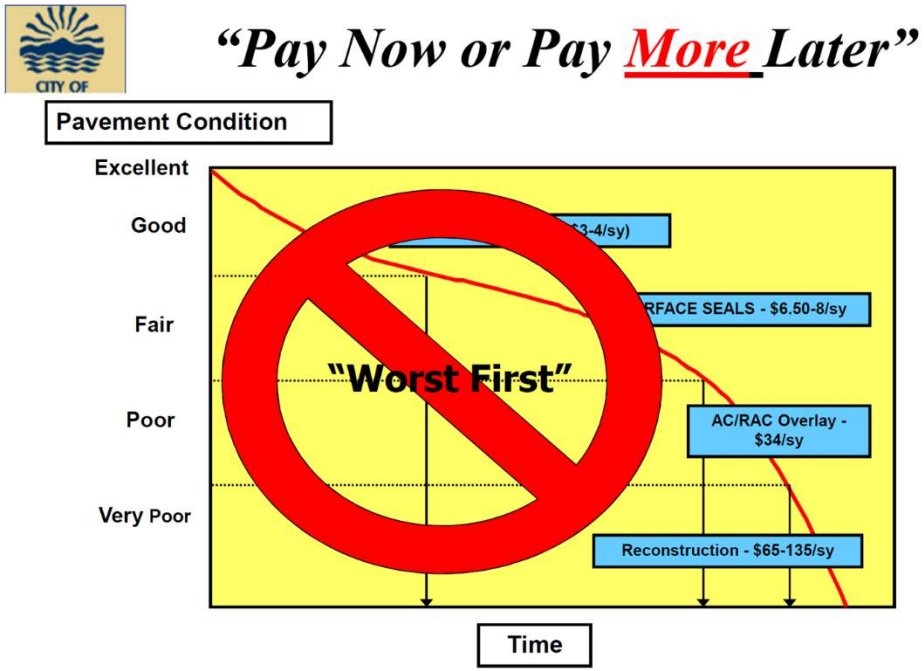
Routine Maintenance:
Street sweeping
Weed abatement
Faulted sidewalk abatement
Crack Filling
Repaint Curbs
Repaint traffic stripes and
Pavement markings

Restoration: **CIP**
AC seal coats
AC overlay
AC rind and replace
AC reconstruct
AC Full depth reclamation
PCC sidewalk reconstruction
PCC cross gutter reconstruction
PCC Curb and gutter reconstruction
PCC ADA access ramps
Guardrail replace
Fence replace
Traffic signal/street light replacement

RMS
How do we spend today?

RMS

- 2014 Estimated Deferred Maintenance
  - $467 Million (Replacement of Sidewalk, Curb/Gutter, Pavement, Bikeway, Pedestrian, Traffic Signals, Street Lighting, Bridges, etc.)

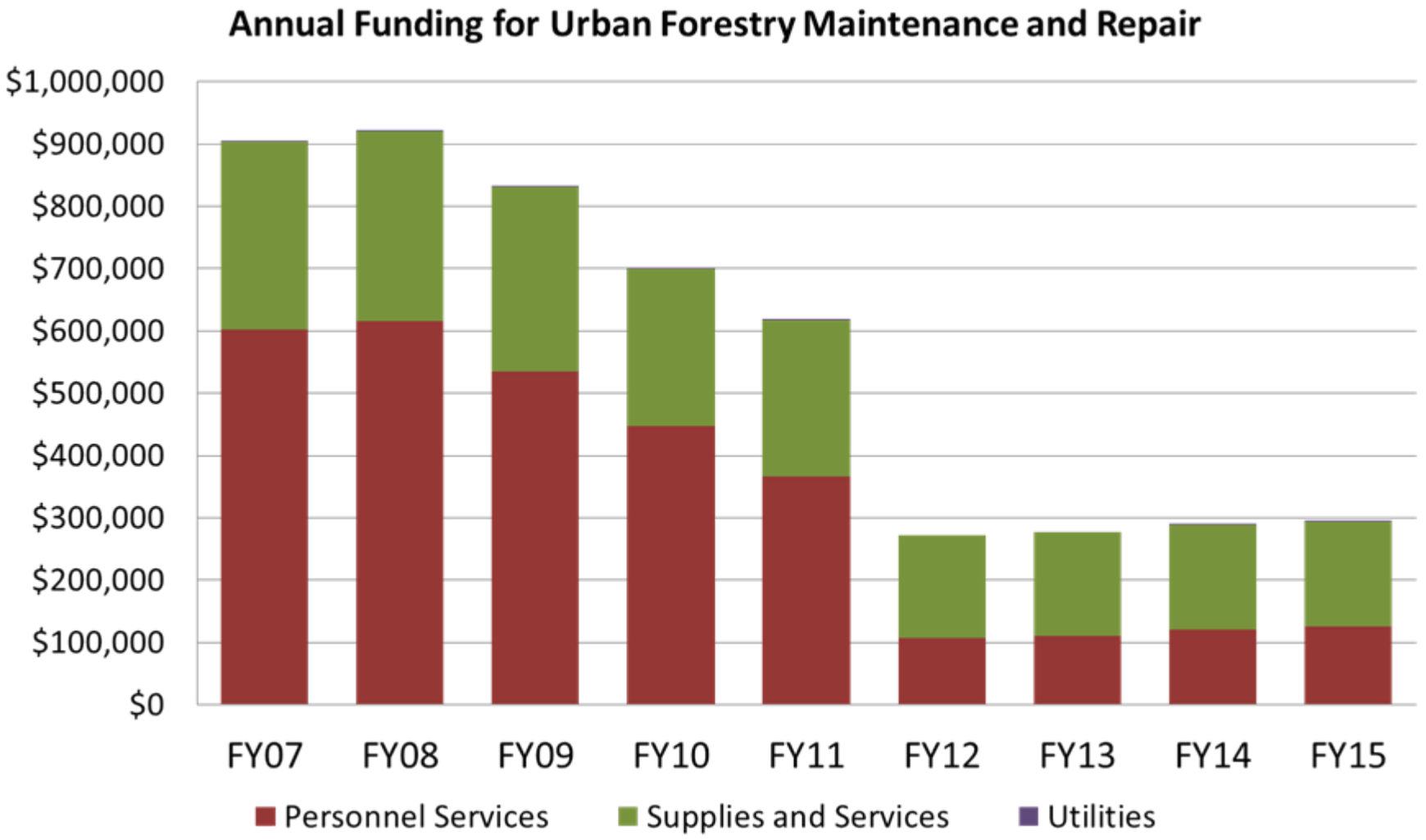


Urban Forestry Management System (UFMS)

UFMS Process Assessment

- Asset Inventory
- Condition Assessment
- Risk Assessment
- Lifecycle Costing
- Catching Up
- Keeping Up
- Moving Forward

Urban Forestry Management System (UFMS)



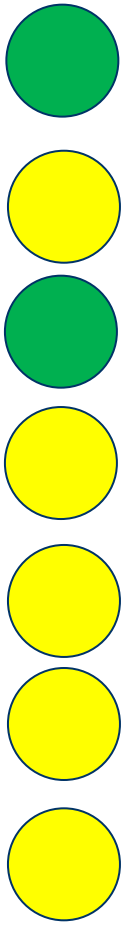
UFMS

- What is the nature of the backlog?
- $1.6M Backlog
  - Includes
    - Trimming Cost
    - Removal Cost
    - Replacement Cost
- Highest Risk
  - Dead/Diseased Trees (227 trees)
  - Most critical (176 – parks) → Estimated $75,000

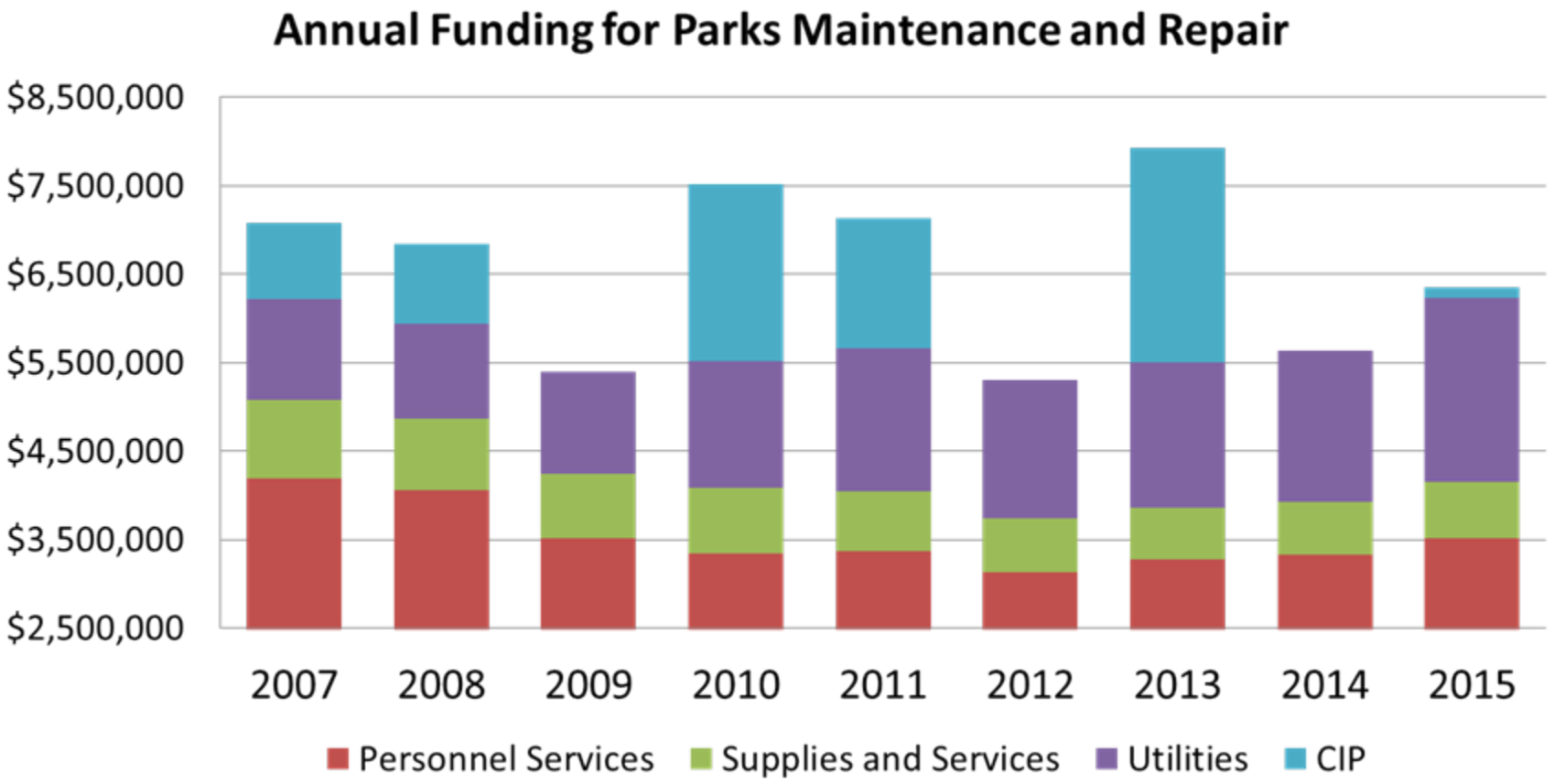
Parks Management System (PMS)

PMS Process Assessment

- Asset Inventory
- Condition Assessment
- Risk Assessment
- Lifecycle Costing
- Catching Up
- Keeping Up
- Moving Forward



Park Management System (PMS)



PMS
How do we spend today?

Routine Maintenance:
Mow and edge turf
Clean and stock restrooms
Pull/replace trash liners
Pull weeds (planted areas)
Litter abatement

Periodic Maintenance:
Fertilize/Herbicide/Aerate turf areas
Graffiti abatement
Fertilize/Herbicide/Multch (planted areas)
Check and repair irrigation systems
Check and repair tot lot equipment and soft fall
Trim trees
Check and repair walking paths and trails
Restore surfacing on tennis and basketball courts
Check and repair hoops, backboards and nets
Repaint various park elements (gazebos, benches, tot lot equipment, etc.)
Restripe parking lots
Renovate sports fields (reseed/rest)

Restoration: CIP
Replace tennis and basketball courts
Replace gazebos
Replace tot lot equipment and surfacing/soft fall
Replace trash receptacle
Replace BBQ
Replace benches and tables
Resurface parking lots
Replace signage
Replace broken concrete (sidewalks, trash pads, picnic pads, etc.)

PMS

- 2014 - Estimated Deferred Maintenance

  $20 Million (Replacement/ Renovation of Fields, Playgrounds, Restrooms, Shelters, etc.)

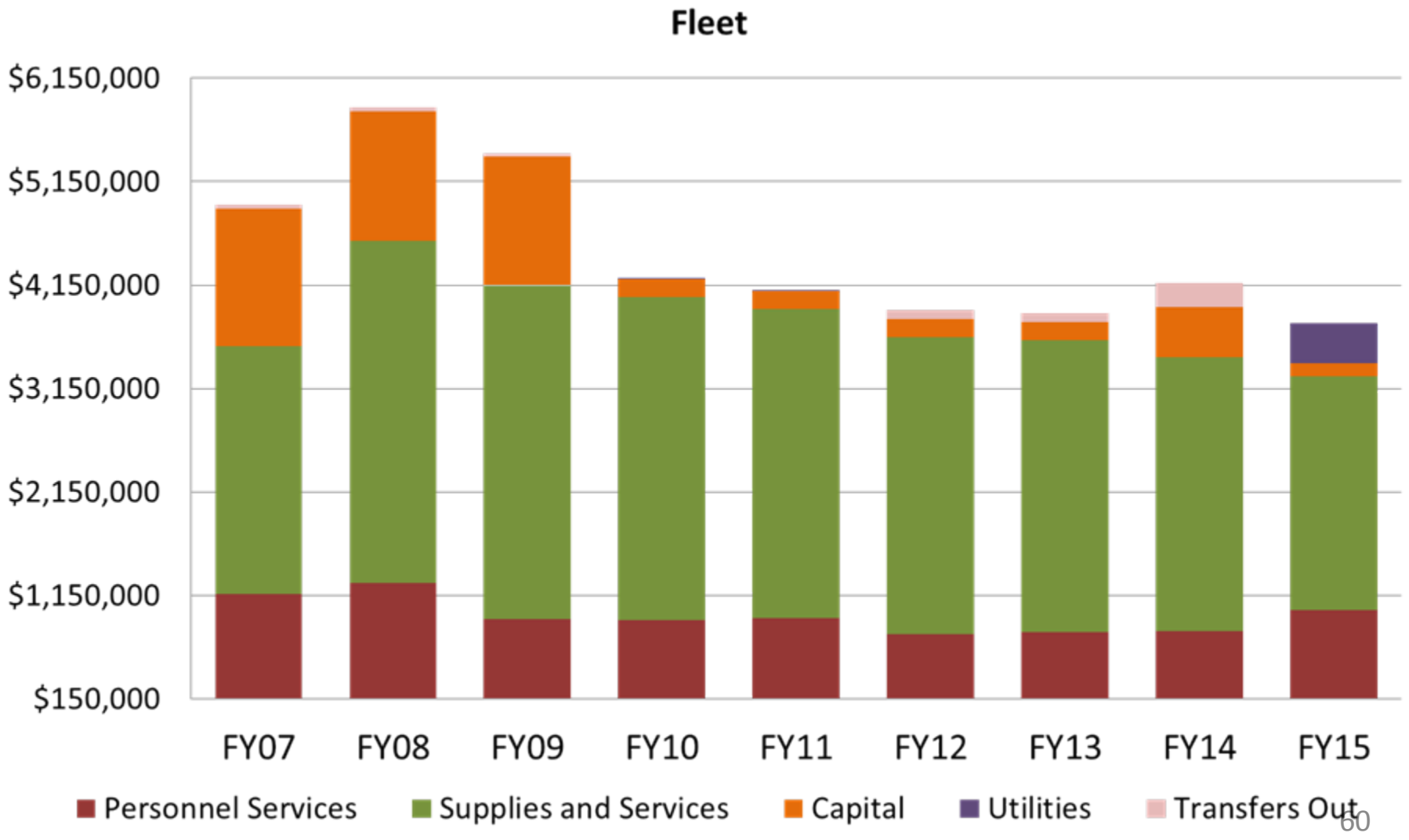
Fleet Management System (FMS)

AMPAC Review of Police and Fire vehicles and facilities

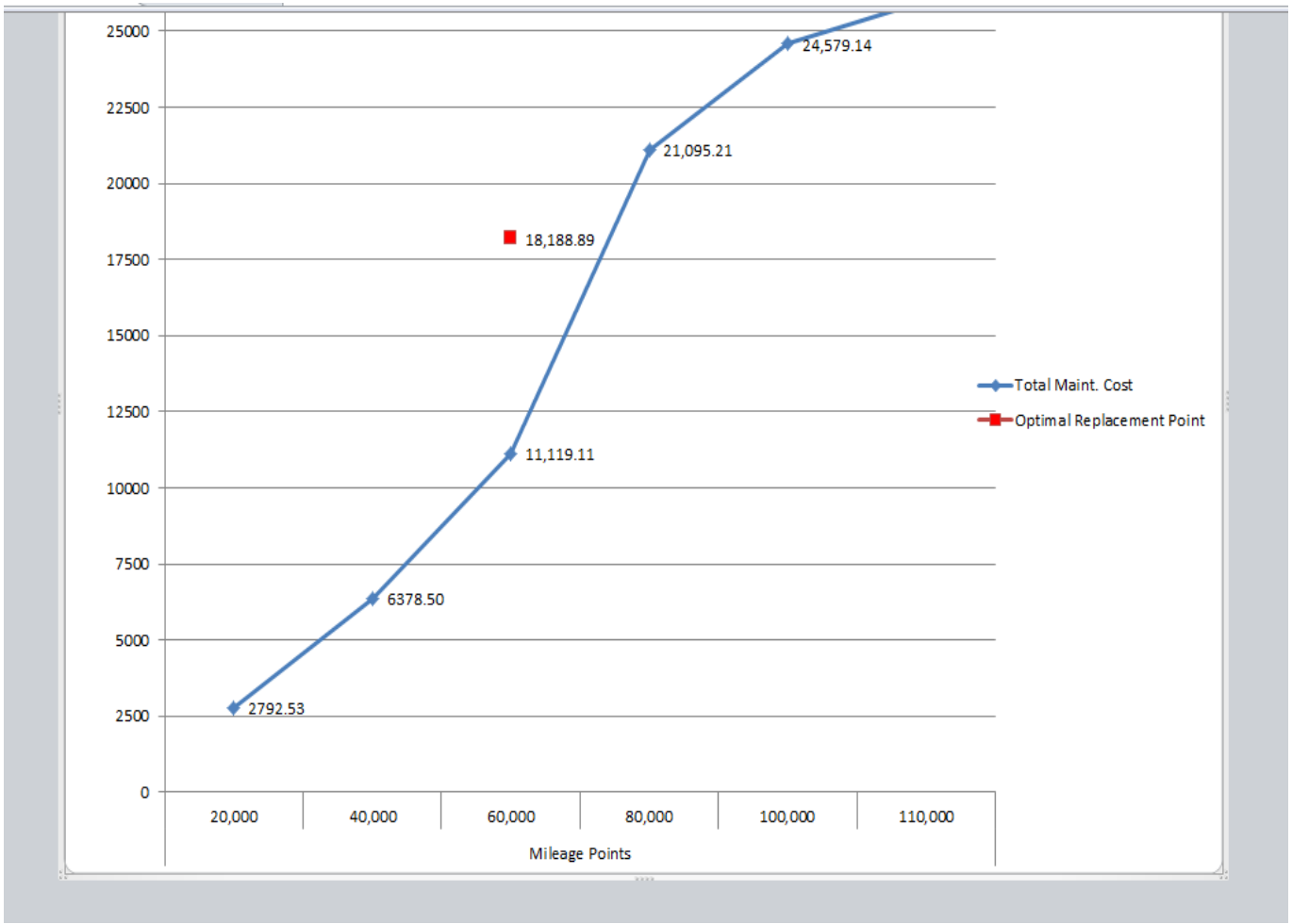
FMS Process Assessment

- Asset Inventory
- Condition Assessment
- Risk Assessment
- Lifecycle Costing
- Catching Up
- Keeping Up
- Moving Forward

Fleet Management System (FMS)



Lost Cost Avoidance



VEHICLE REPLACEMENT

FISCAL YEAR	NON-SAFETY VEHICLES[1] [2]	PATROL CARS [2]
2014-15	0 of 0	13 of 13
2013-14	8 of 8[3]	0 of 0[4]
2012-13	5 of 5[3]	7 of 7[4]
2011-12	0 of 24[3]	0 of 6[4]
2010-11	0 of 19[3]	10 of 10[4]
2009-10	0 of 12[3]	14 of 19[4]
2008-09	0 of 10[3]	10 of 19[4]

(1) Excludes Sewer funded vehicles.

(2) No. of vehicles scheduled to be replaced.

(3) Reflects extended replacement intervals.

(4) Replaced at 100,000 miles vs. 80,000 miles.

FMS
How do we spend today?

Service Requests:
Mechanical Failure
Damage
Body work

Routine Maintenance:
PM’s

Restoration: **CIP**
Replacement

FMS

- $2.3 M

Department	# of Vehicles	Replacement Amount
Animal Care Services	2	$150,000
Community Patrol	17	$1,054,000
Traffic Enforcement	1	$34,000
Fire Administration	2	$120,000
Fire Suppression	2	$120,000
Public Works	9	$747,000
Emergency Vehicle Purchases		$70,000
TOTAL		**$2,295,000**

Building Management System (BMS)

AMPAC Tour of Fire Station #1

BMS Process Assessment

Asset Inventory

Condition Assessment

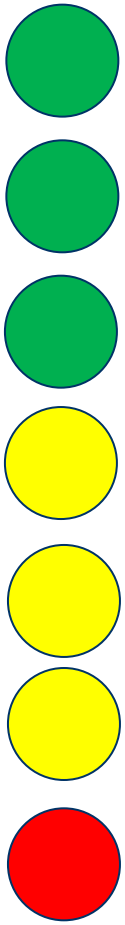
Risk Assessment

Lifecycle Costing

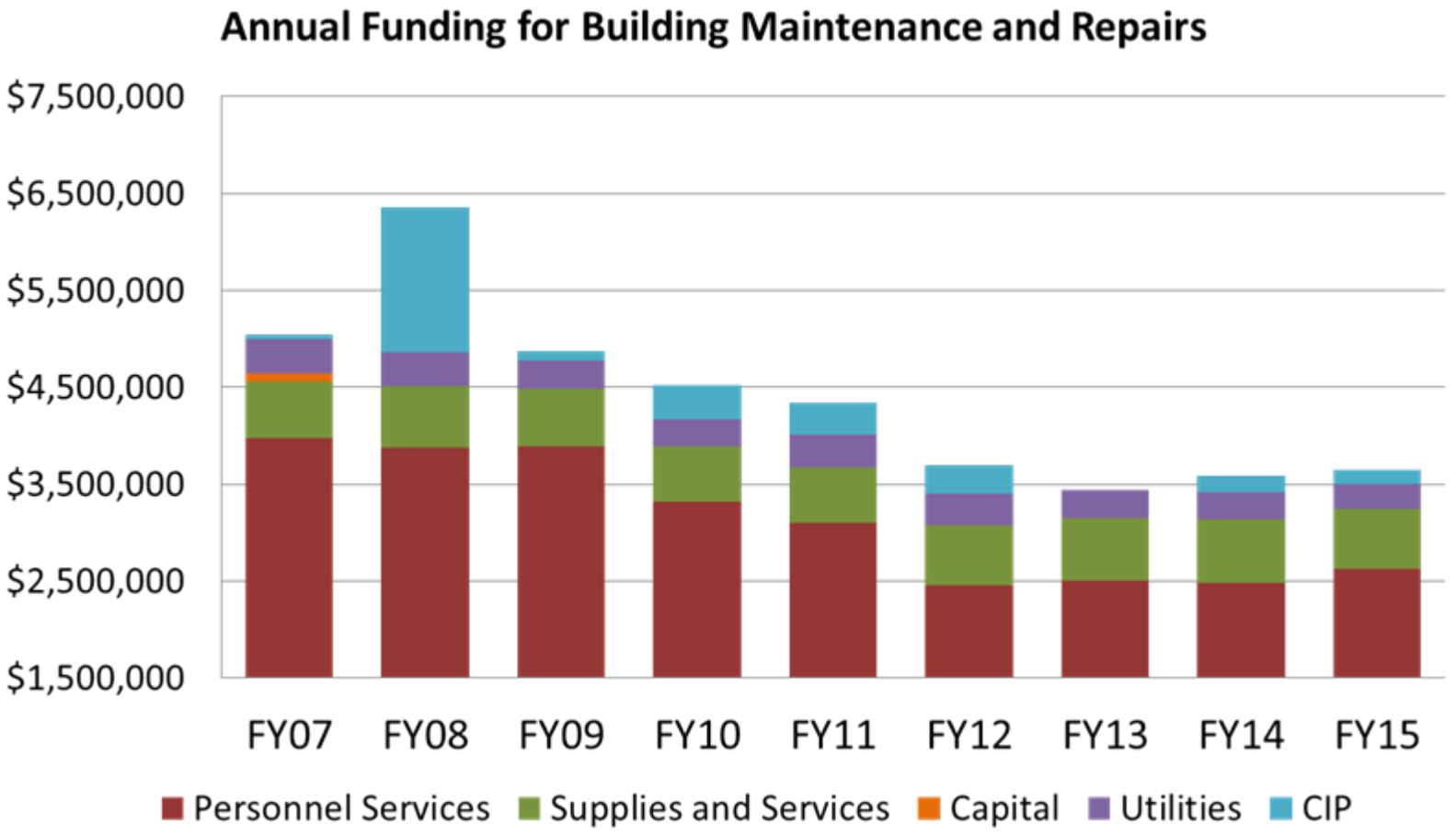
Catching Up

Keeping Up

Moving Forward



Building Management System (BMS)



BMS
How do we spend today?

Routine Maintenance:

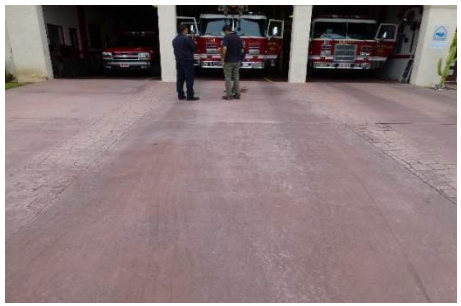
- Light bulb replacement
- Plumbing fixture repair
- Door locks/keys
- Radio repairs
- Replace wires (theft)
- Recharge HVAC

Restoration: CIP

- HVAC Replacement
- ADA Compliance
- Roof Replacement
- Exterior/interior paint

BMS

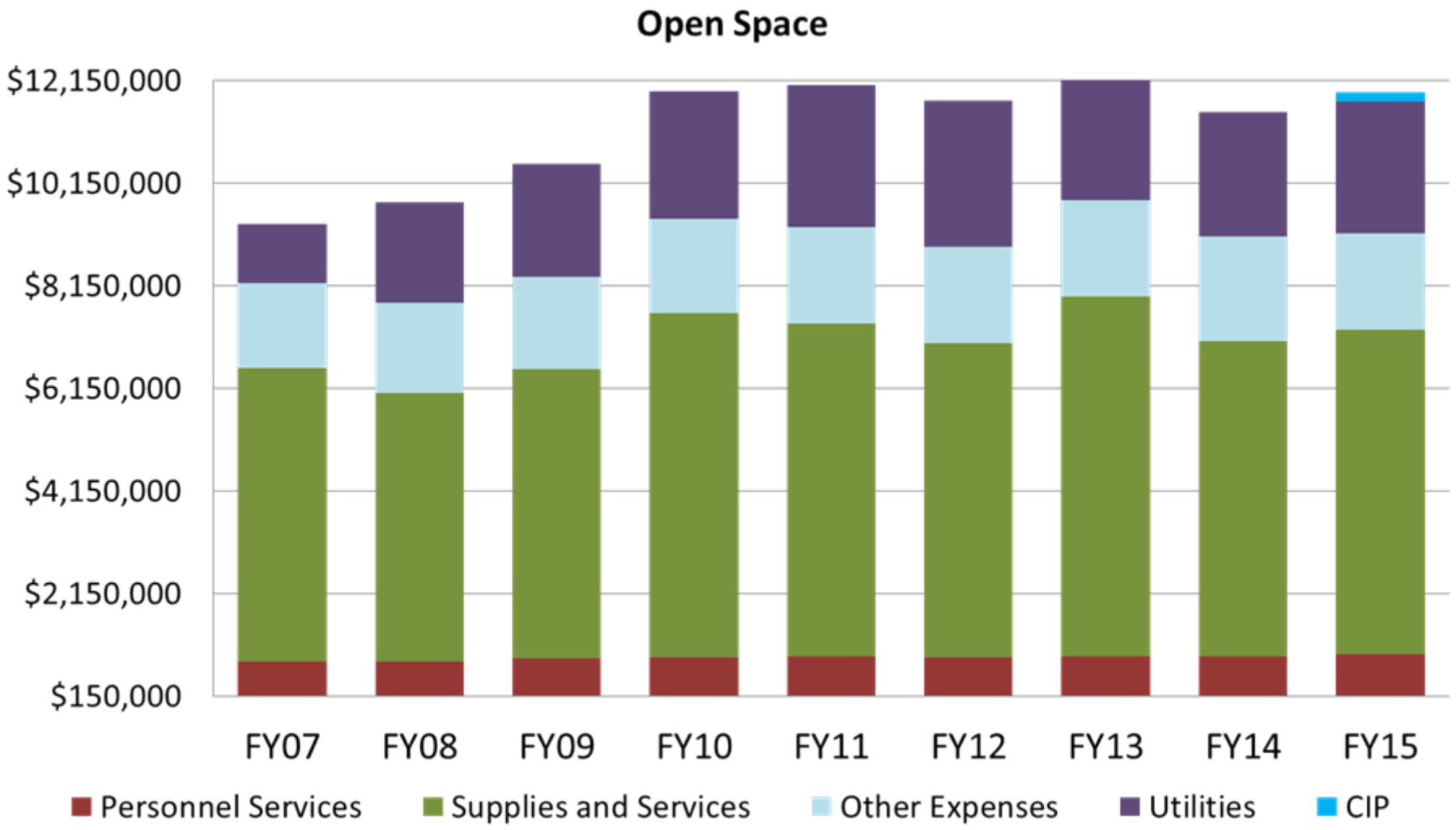
- 2014 Estimated Deferred Maintenance of Buildings & Facilities
  - $60 Million (Replacement of Roofing, HVAC, Plumbing, Electrical Systems, etc.)



OSMS Process Assessment

- Asset Inventory
- Condition Assessment
- Risk Assessment
- Lifecycle Costing
- Catching Up
- Keeping Up
- Moving Forward

Open Space Management System (OSMS)



GGMS Process Assessment

- Asset Inventory
- Condition Assessment
- Risk Assessment
- Lifecycle Costing
- Catching Up
- Keeping Up
- Moving Forward

Chula Vista's Asset Management Journey Continues

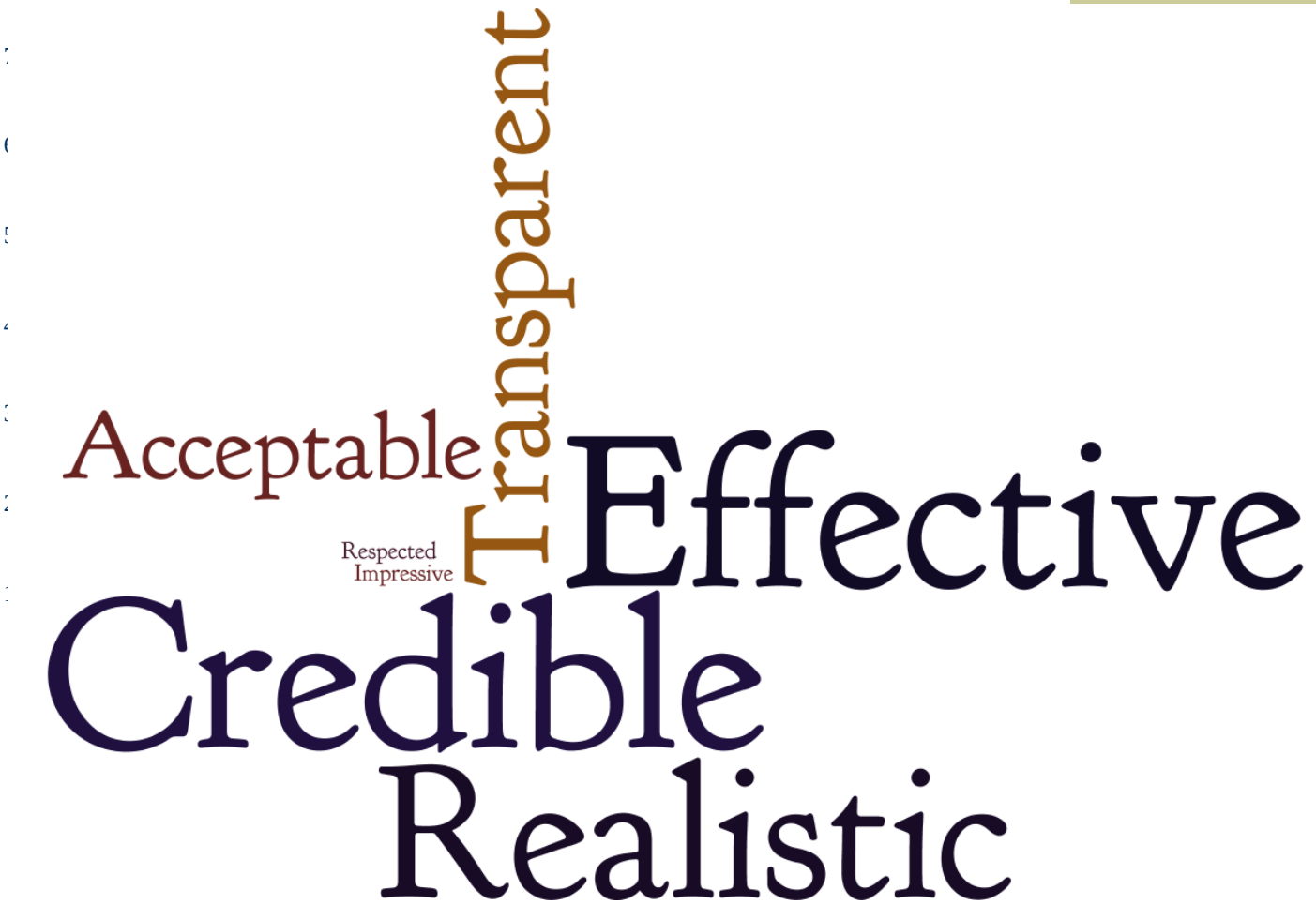
- Austere times continue-no relief in 5 year forecast
- Staff is working smarter (CI) to keep services in place
- Continue to consume useful life of our assets
- Quantifying funding needs to sustain levels of service
- Confront risks & prioritizing probabilities
- Seek input from the community (LOS and $)
- Update Budgets to reflect expectations

CURRENT FUNDING SOURCES

- *General Fund (Property and Sales Tax)*
- *Assessment Districts*
- *Grants (Federal/State/Local/Private)*
- *Fees (users)*
- *Gas Excise Tax (State/Federal)*
- *Local Sales Tax*

The City's infrastructure need is

The asset inventory process that evaluates the City's infrastructure need is



The City's asset management approach is

AMPAC

What's Next?

- Continue Inventory
- Continued AMPAC meetings
- Citizen outreach on Infrastructure needs

Questions or topics for future AMPAC meetings

- How to select which projects get done first
- Citizen's perception of wants vs. needs & priorities
- Layout the priorities for the next 5 years and projected costs.
- Cost reduction in areas of high cost
- History of claims against the city
- Funding strategies
- Thoughts and ideas around pursuing additional funds to close the infrastructure gap
- Discuss available revenue streams and options for obtaining additional revenue/funding