

**City of Carson City
Agenda Report**

Date Submitted: May 6, 2011

Agenda Date Requested: May 19, 2011
Time Requested: 60 minutes

To: Mayor and Supervisors
From: Public Works

Subject Title: Special presentation that updates the progress and plans of the Carson City Storm Water Management Program (*Andrew Burnham/Robert Fellows*)

Staff Summary: In early January 1997, Carson City was impacted by a rare flood event generated from an unusual and prolonged winter-time storm. This event caused wide-spread and costly flood damages throughout the city. Since that time, the city – via the Public Works Department - has taken steps to reduce the recurrence of such flooding and to minimize future damages to public and private properties alike. One crucial step in this process was the formation of the Carson City Storm Water Management Program and the City's Storm Water Utility. This presentation provides a timeline of the activities and events that have shaped the Storm Water Management Program and Utility from the 1997 flood to the present. Presentation highlights include: 1) an overview of the program and its integration with FEMA's National Flood Insurance Program; 2) the review of recent floodplain studies and flood hazard map revisions within the city; 3) the current and future plans for stormwater capital improvements within the program; and 4) an introduction of future plans for and needs of the Storm Water Management Program.

Type of Action Requested: (check one)

Resolution Ordinance
 Formal Action/Motion Other (presentation)

Does This Action Require A Business Impact Statement: Yes No

Recommended Board Action: None

Explanation for Recommended Board Action: N/A

Applicable Statute, Code, Policy, Rule or Regulation: N/A

Fiscal Impact: No fiscal impact.

Explanation of Impact: N/A

Funding Source: N/A

Alternatives: N/A

Supporting Material: Power point presentation

Prepared By: Robert Fellows

Reviewed By: [Signature]
(Public Works)
[Signature]
(City Manager)
[Signature]
(District Attorney)
[Signature]
(Finance Director)

Date: 5-10-11
Date: 5-10-11
Date: 5/10/11
Date: 5/10/11

Board Action Taken:

Motion: _____

- 1) _____
- 2) _____

Aye/Nay

(Vote Recorded By)

CARSON CITY



STORM WATER MANAGEMENT PROGRAM

May 2011

Progress Update and Plans



Robb Fellows, PE
Chief Stormwater Engineer



Presentation Outline

-  Activity and Event Timeline
-  Storm Water Program Overview
-  National Flood Insurance Program (NFIP)
-  Floodplain Studies and Mapping Efforts
-  Stormwater Capital Improvements (CIP)
-  Where to Go From Here...

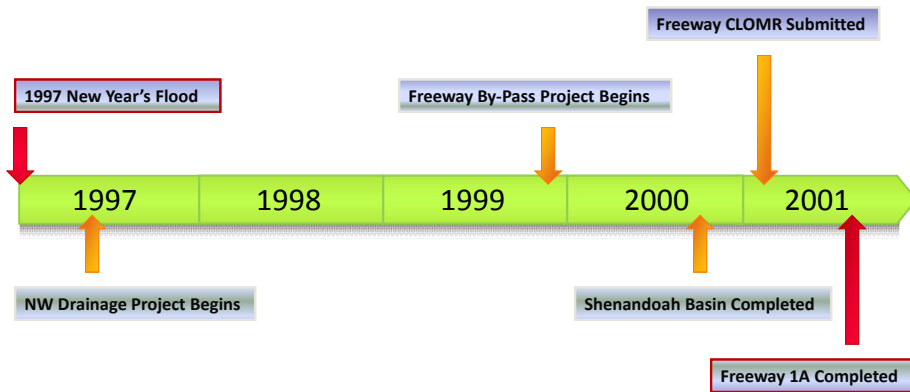


Presentation Outline

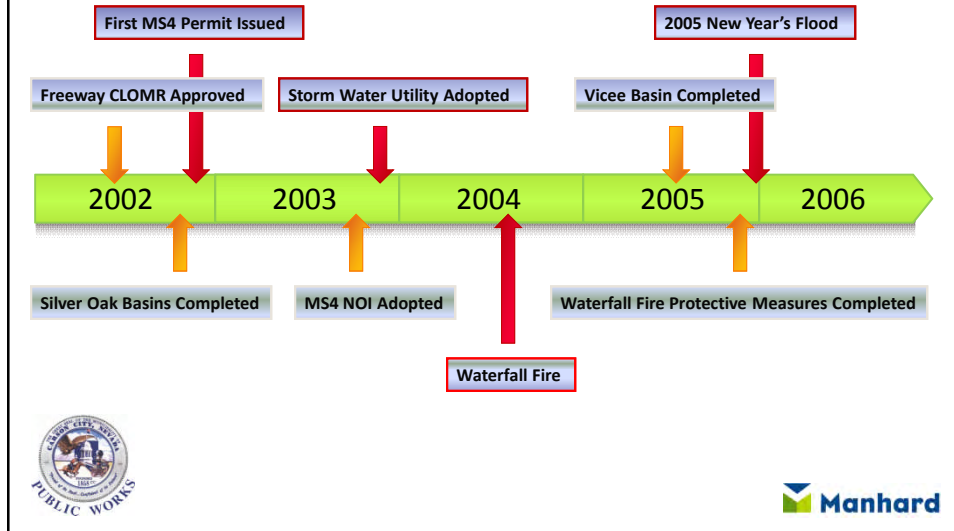
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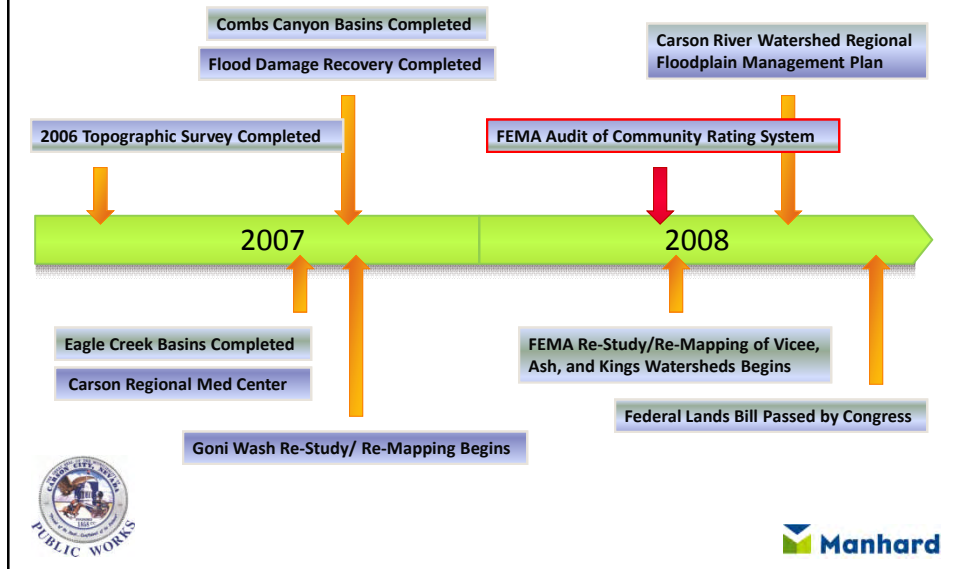
Activity and Event Timeline



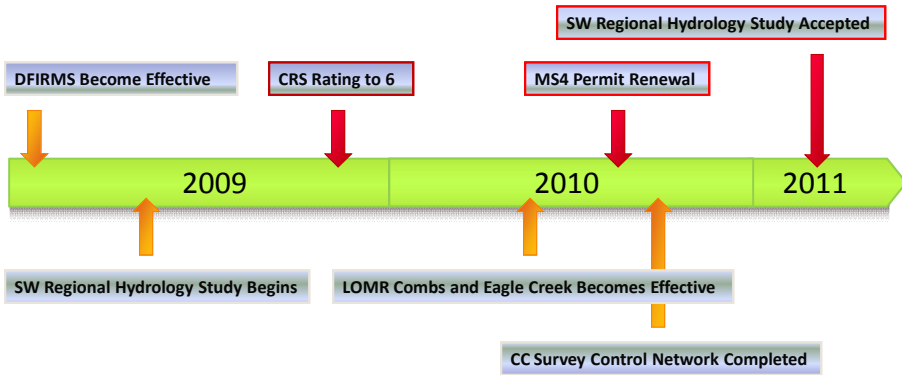
Activity and Event Timeline



Activity and Event Timeline



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Storm Water Management Program

-  Storm Water Utility
-  NPDES Phase II Program
-  Floodplain Management NFIP/CRS
-  US 395 Freeway Drainage Elements
-  Capital Improvements / SW Operations



National Pollution Discharge Elimination System (NPDES)

1987 Amendments to the 1972 U.S. Clean Water Act

USEPA's Regulation of Storm Water Runoff in Two Phases

Unfunded Federal Mandate on State and Local Governments

Enforced by Nevada Division of Environmental Protection (NDEP)

NPDES Phase I 1990

Medium to Large Municipalities and Large Construction Sites (≥ 5 ac.)

NPDES Phase II 2003

Small Municipalities and Small Construction Sites (≥ 1 ac.)



Carson City Initial NPDES Permit Requirements (2002)

1. Public Education and Outreach

2. Public Participation and Involvement

3. Illicit Discharge Detection and Elimination

4. Construction Site Runoff Control

5. Post-construction Runoff Control

6. Pollution Prevention / Good Housekeeping

PLUS: Carson City Urbanized Discharge to Clear Creek



Carson City NPDES Permit Renewal Requirements (2010)

SAME Requirements from Initial Permit, PLUS:

1. Low Impact Development (LID)
2. Redevelopment
3. Increased Public Outreach
4. Increased Program Documentation
5. Additional SW System Maintenance
6. City SW Ordinance Changes



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National Flood Insurance Program (NFIP)

<p>1968: National Flood Insurance Act 1973: Flood Disaster Protection Act 1994 & 2004: National Flood Insurance Reform Acts</p>			
<p>Provides federally backed flood insurance to property owners in NFIP participating communities.</p>		<p>Encourages communities to enact, update, and enforce floodplain management ordinances and regulations.</p>	
<p>Provides Flood Insurance Studies (FISs)</p>	<p>Provides Flood Insurance Rate Maps (FIRMs)</p>	<p>Reviews and processes Letter of Map Change (LOMC) applications.</p>	<p>Administers and Regulates the Community Rating System (CRS).</p>



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NFIP Community Rating System (CRS)

Voluntary for Communities

Incentives for Communities

Full Compliance with NFIP

Must Exceed Minimum Requirements

Credit Points and Classifications

Recognizes Community Activities



FEMA Recognized CRS Activities

Public Information

- Advise local populace of flood hazards, insurance, and protective measures.

Mapping and Regulation

- Enact and enforce regulations that exceed the NFIP minimum standards.

Flood Damage Reduction

- Acquire, relocate, or retrofit existing structures and maintain drainageways and retention basins.

Flood Preparedness

- Flood Warning, Emergency Response, Evacuation Plans, and Maintenance.



Credit Points, Classes, and Premium Reductions

CREDIT POINTS	CLASS	PREMIUM REDUCTION SFHA*	PREMIUM REDUCTION NON-SFHA**
4,500+	1	45%	10%
4,000 – 4,499	2	40%	10%
3,500 – 3,999	3	35%	10%
3,000 – 3,499	4	30%	10%
2,500 – 2,999	5	25%	10%
2,000 – 2,499	6	20%	10%
1,500 – 1,999	7	15%	5%
1,000 – 1,499	8	10%	5%
500 – 999	9	5%	5%
0 – 499	10	0	0



Credit Points, Classes, and Premium Reductions

CREDIT POINTS	CLASS	PREMIUM REDUCTION SFHA*	PREMIUM REDUCTION NON-SFHA**
4,500+	1		10%
4,000 – 4,499	2		10%
3,500 – 3,999	3		10%
3,000 – 3,499	4	30%	10%
2,500 – 2,999	5	25%	10%
2,000 – 2,499	6	20%	10%
1,500 – 1,999	7	15%	5%
1,000 – 1,499	8	10%	5%
500 – 999	9	5%	5%
0 – 499	10	0	0

Carson City currently has 2,040 credit points and a Class 6 CRS Rating



Current CRS Classes

Nevada Communities

Community	Class
Carson City	6
Clark County	6
Douglas County	6
City of Henderson	6
City of Las Vegas	6
City of Mesquite	7
City of North Las Vegas	6
Storey County	8
Washoe County	7

National Statistics

Communities	Class
1	1
2	2
1	3
5	4
50	5
112	6

Roseville, CA only Class 1



Presentation Outline



Activity and Event Timeline



Storm Water Program Overview



National Flood Insurance Program (NFIP)



Floodplain Studies and Mapping Efforts



Stormwater Capital Improvements (CIP)



Where to Go From Here...



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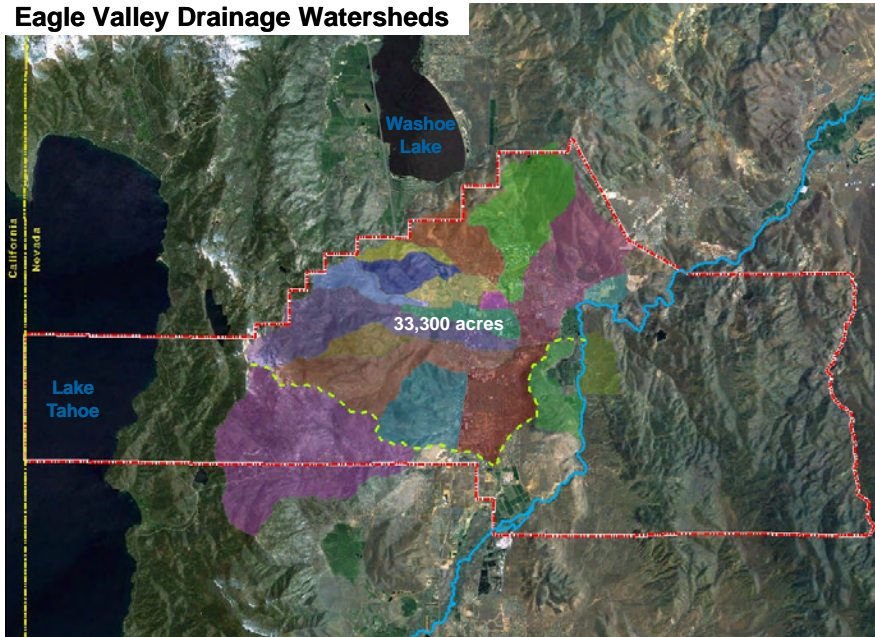
Where to Go From Here...



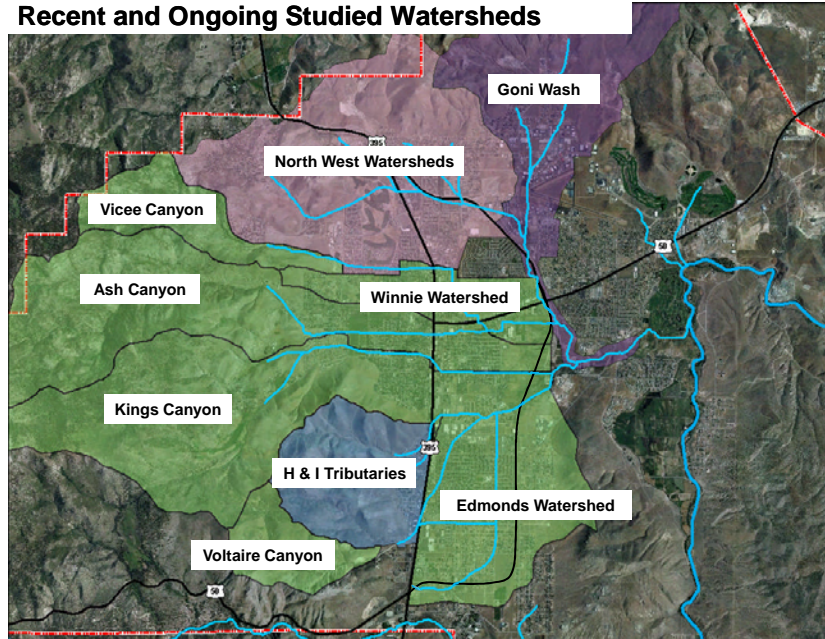
Floodplain Studies and Mapping Efforts



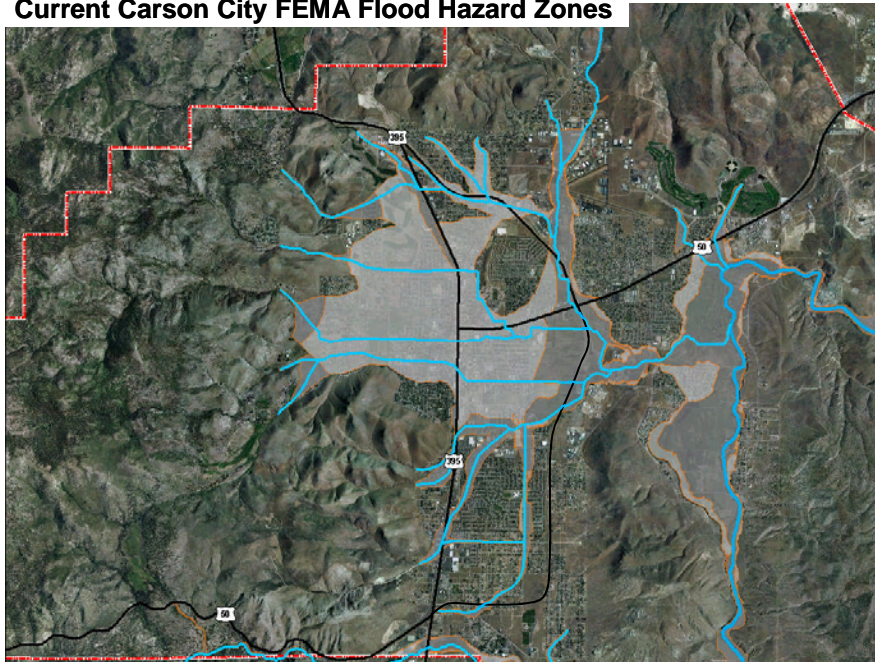
Eagle Valley Drainage Watersheds



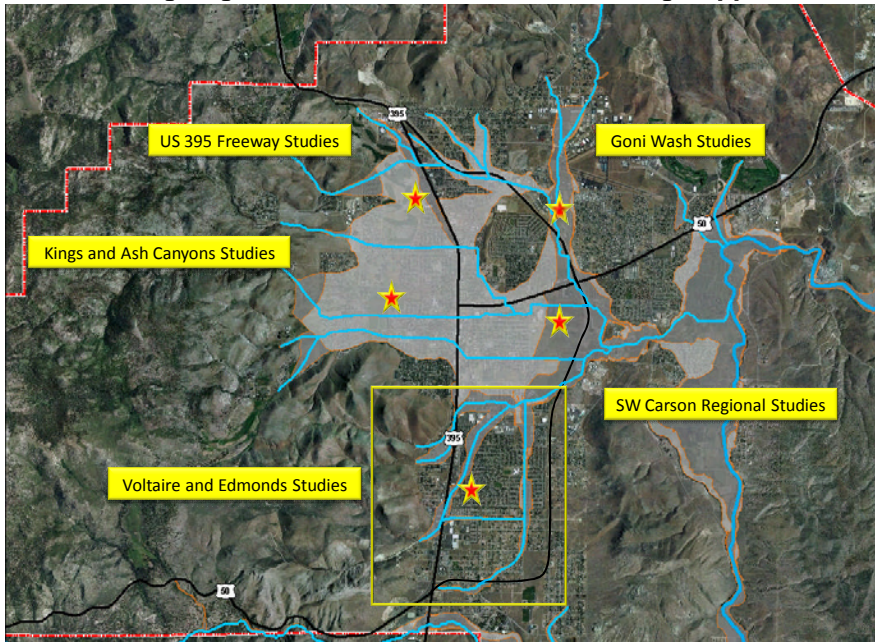
Recent and Ongoing Studied Watersheds



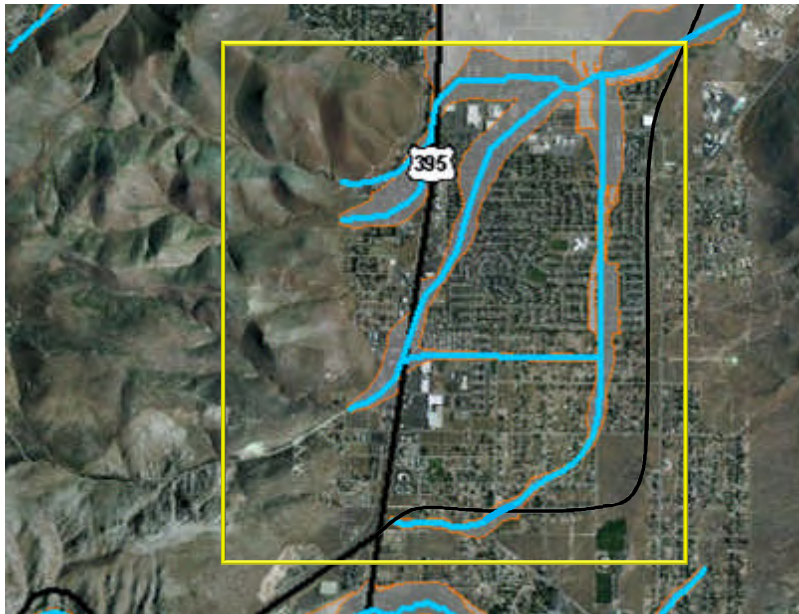
Current Carson City FEMA Flood Hazard Zones



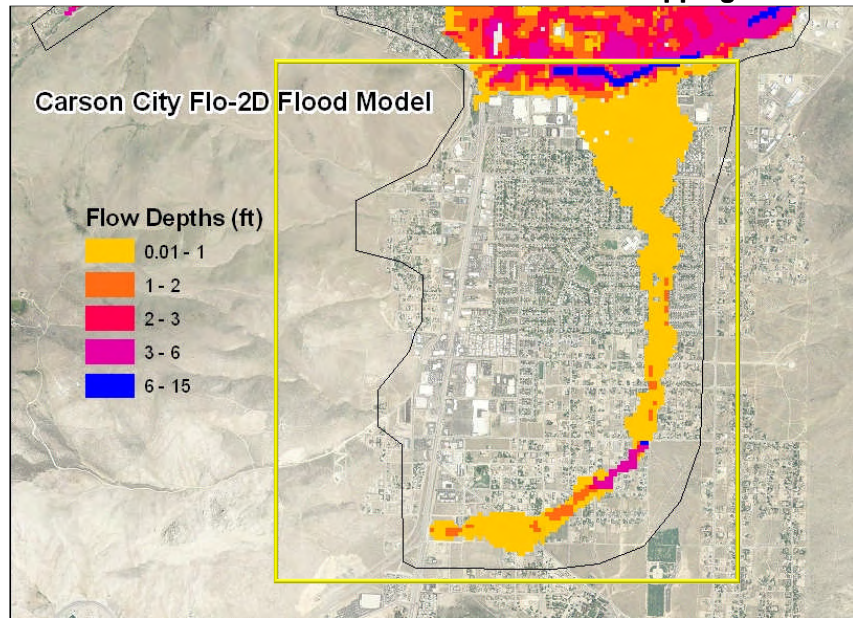
Recent/Ongoing Flood Hazard Zone Studies/Change Applications



EXAMPLE: Voltaire & Edmonds Current Flood Zones



EXAMPLE: Voltaire & Edmonds Flood Zone Remapping



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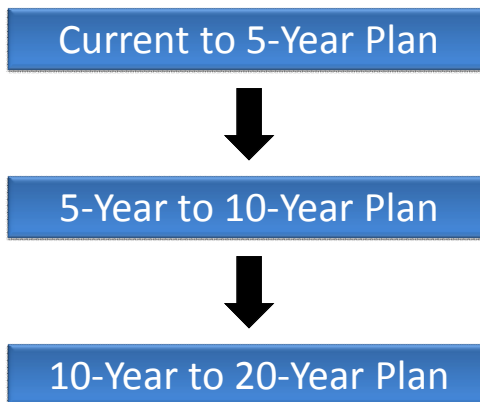


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Stormwater Capital Improvements (CIP)



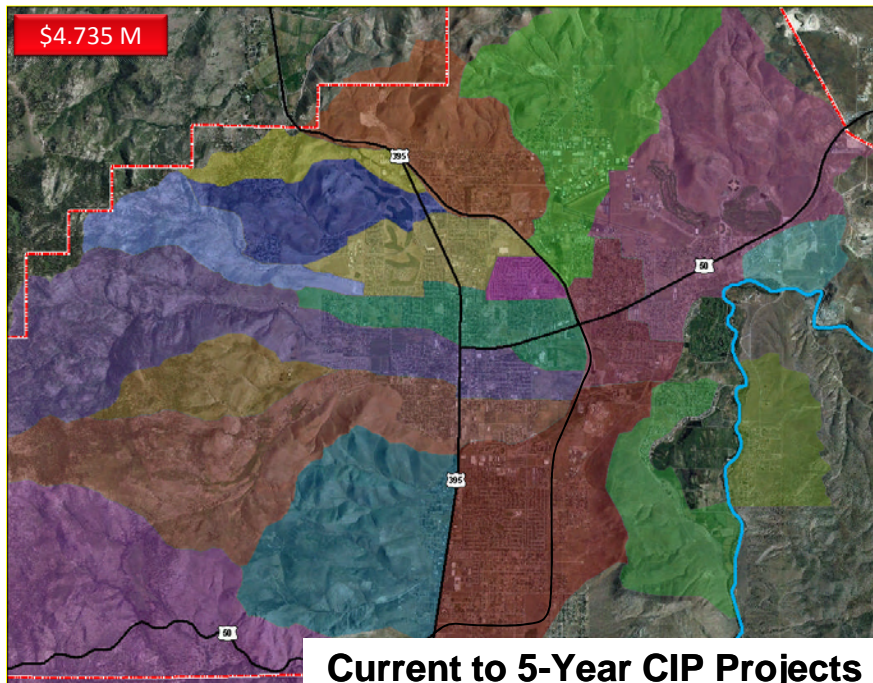
Current to 5-Year CIP Projects

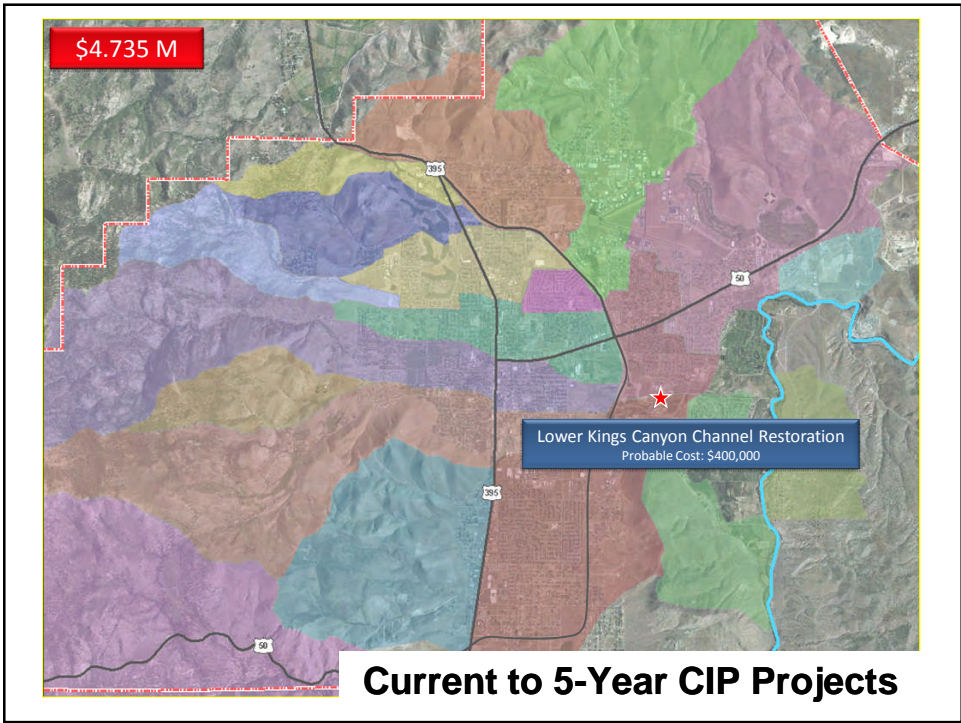
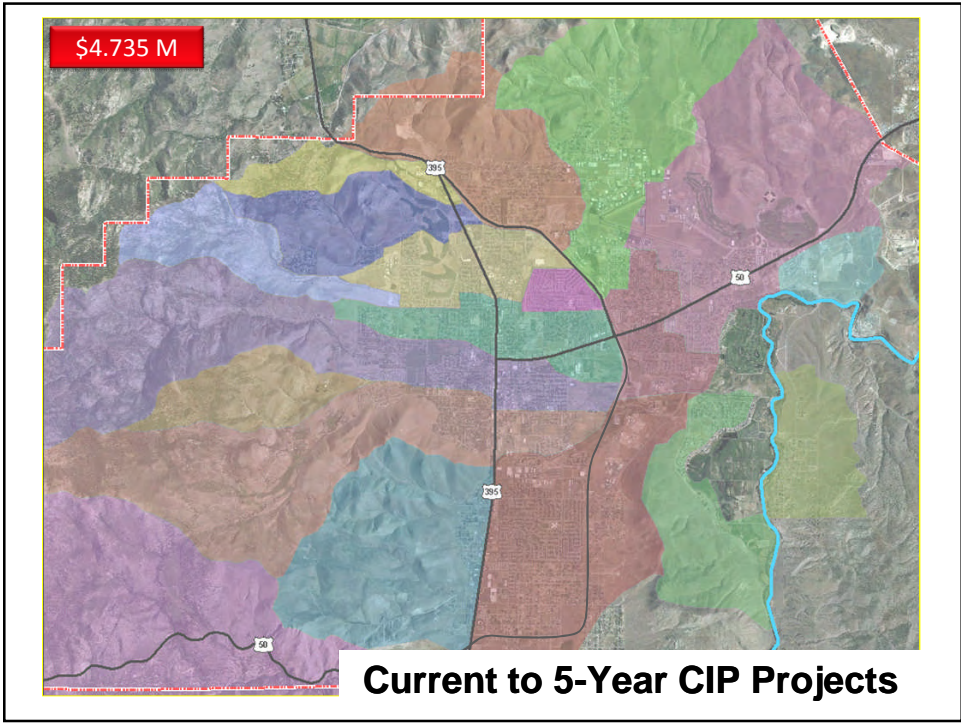
Program Summary

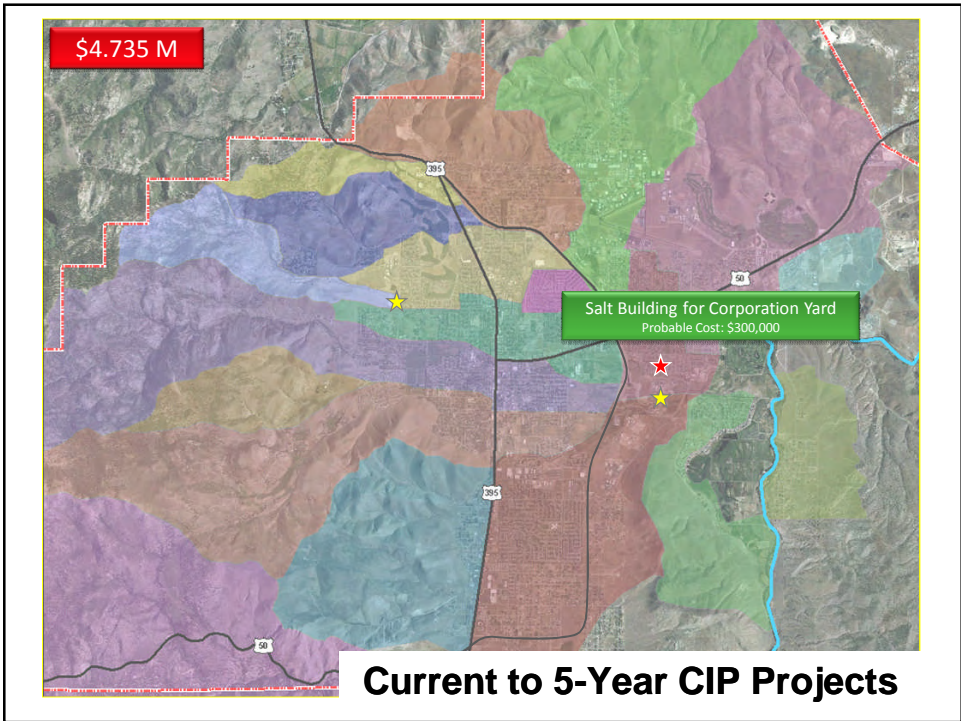
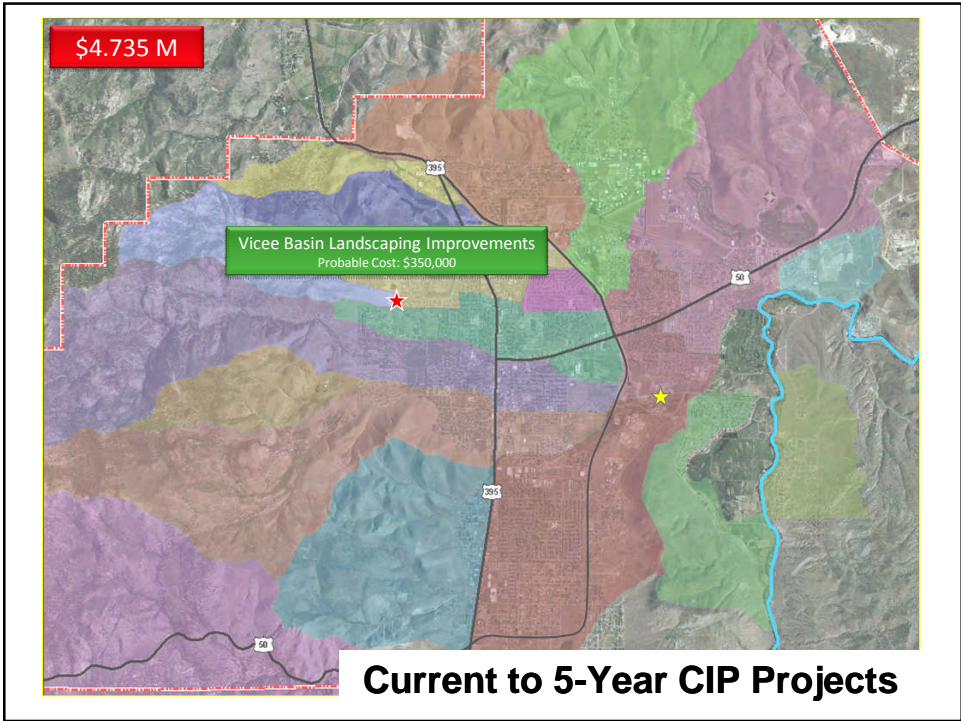
Fiscal Years	10/11 – 13/14
# of Projects	12
Estimates Costs	\$4.735 M
Affected Watersheds	7

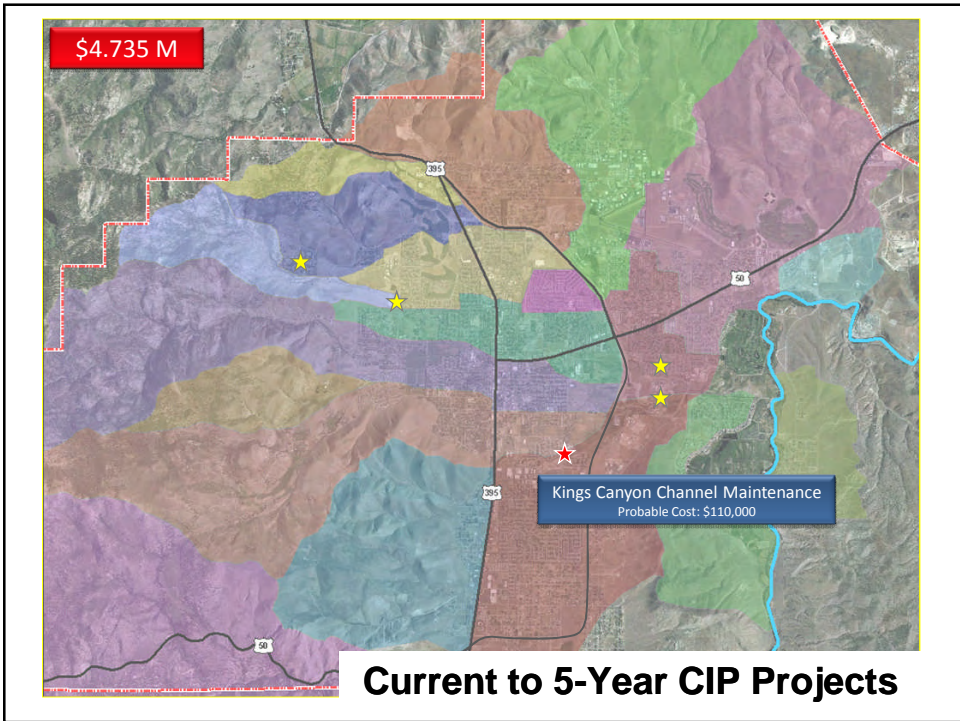
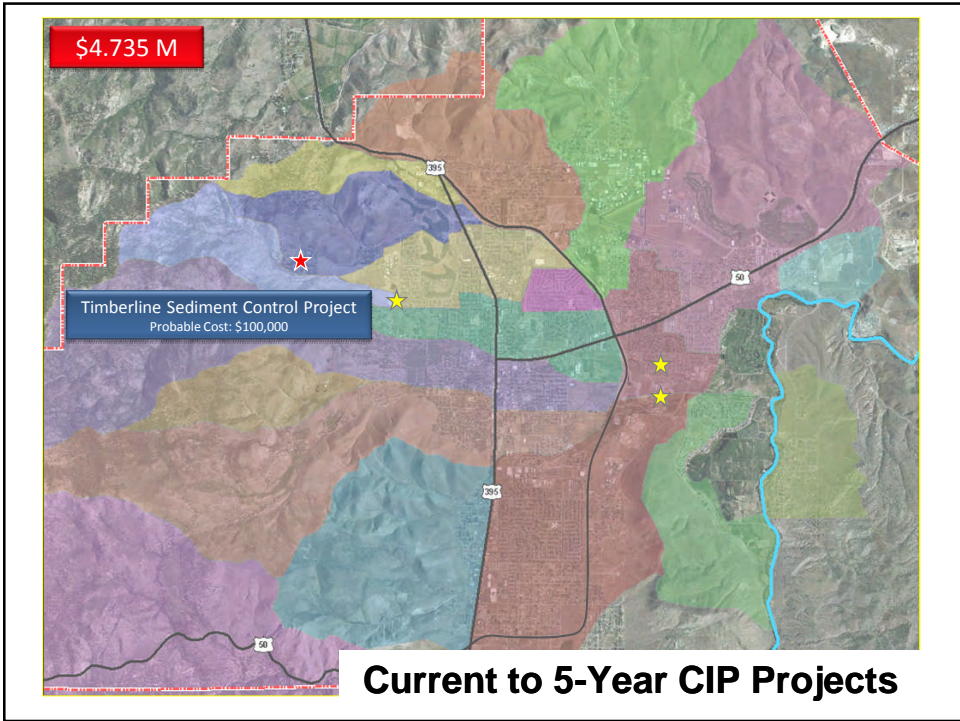
Project Types /

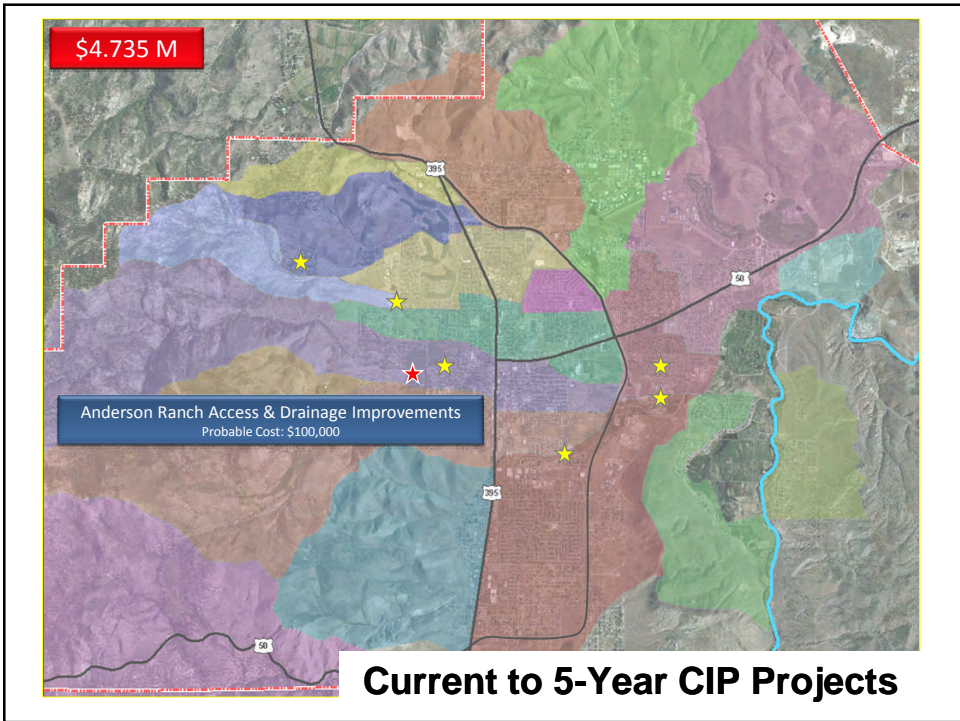
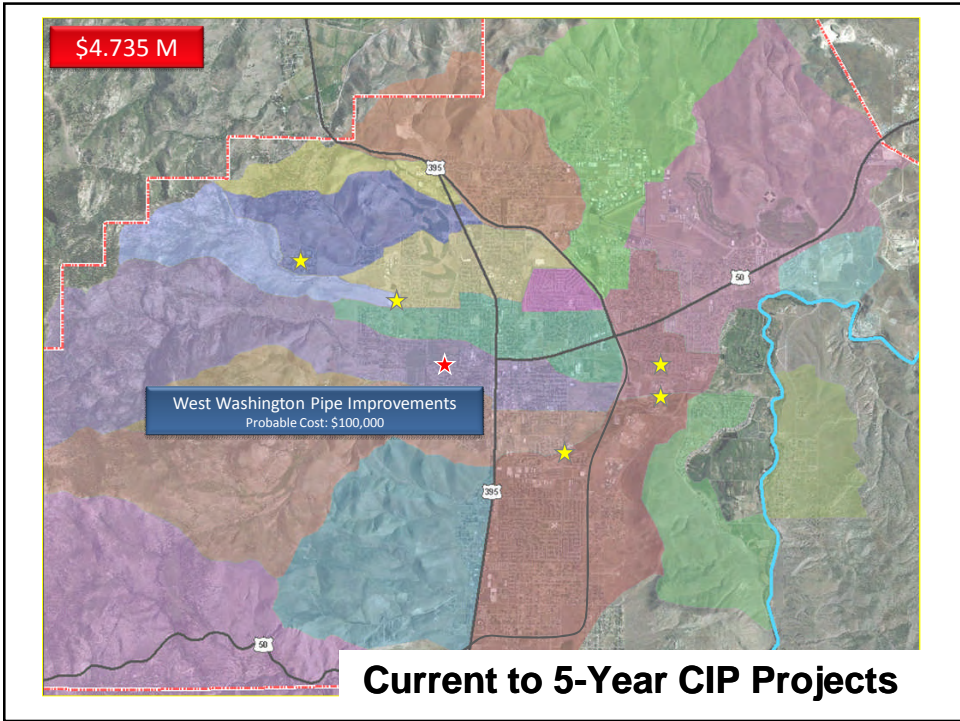
Upgrades of Existing SW System	7
Water Quality Improvements	2
Combination of Project Types	2
SW Required Land Purchases	1

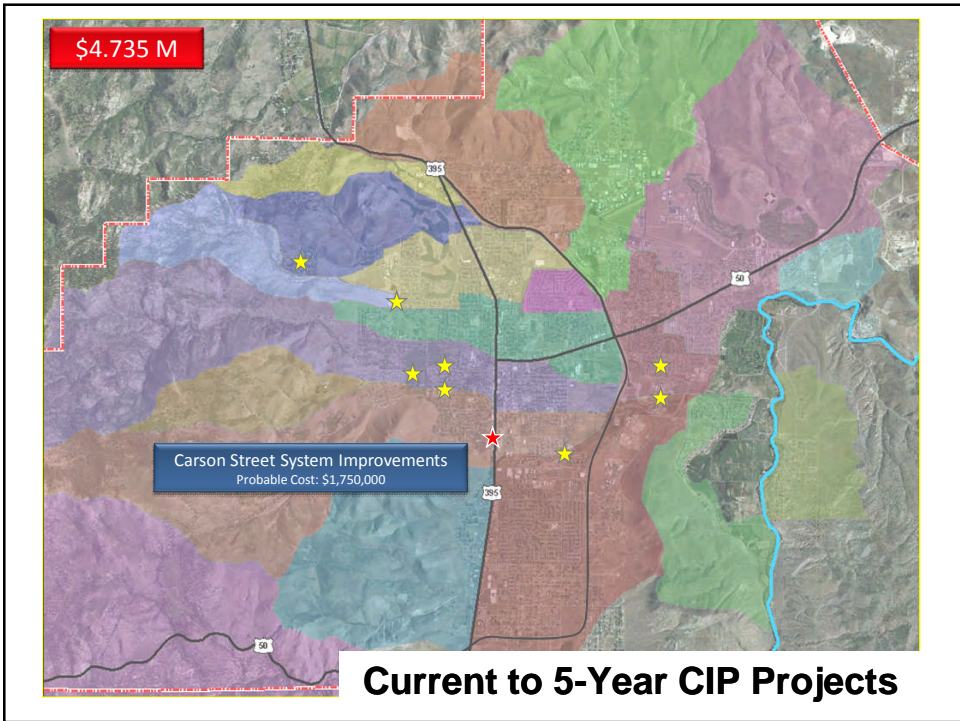
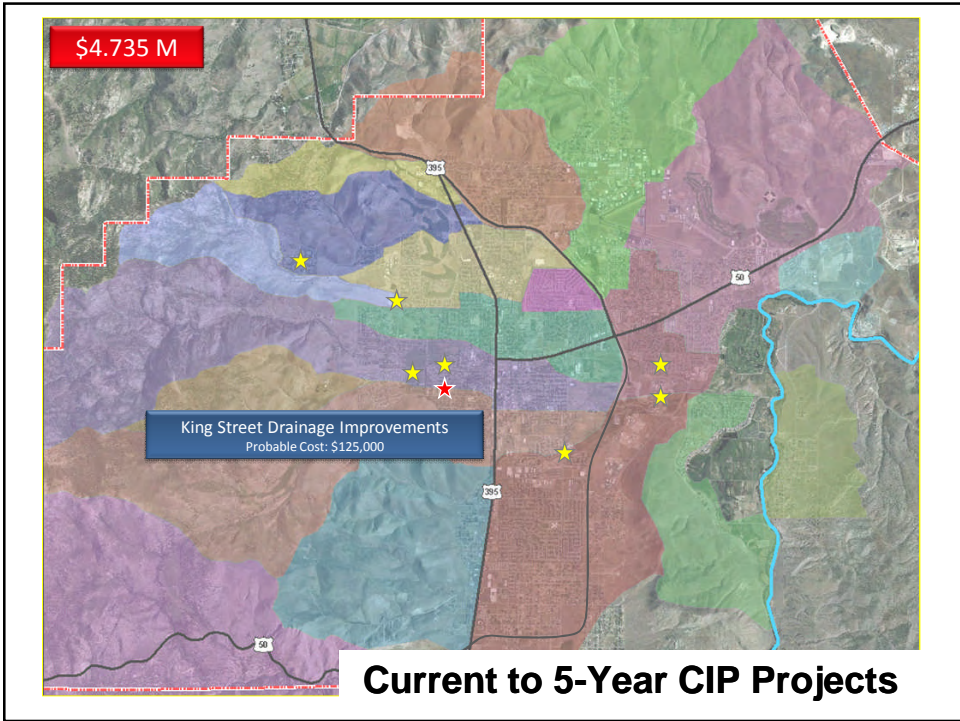


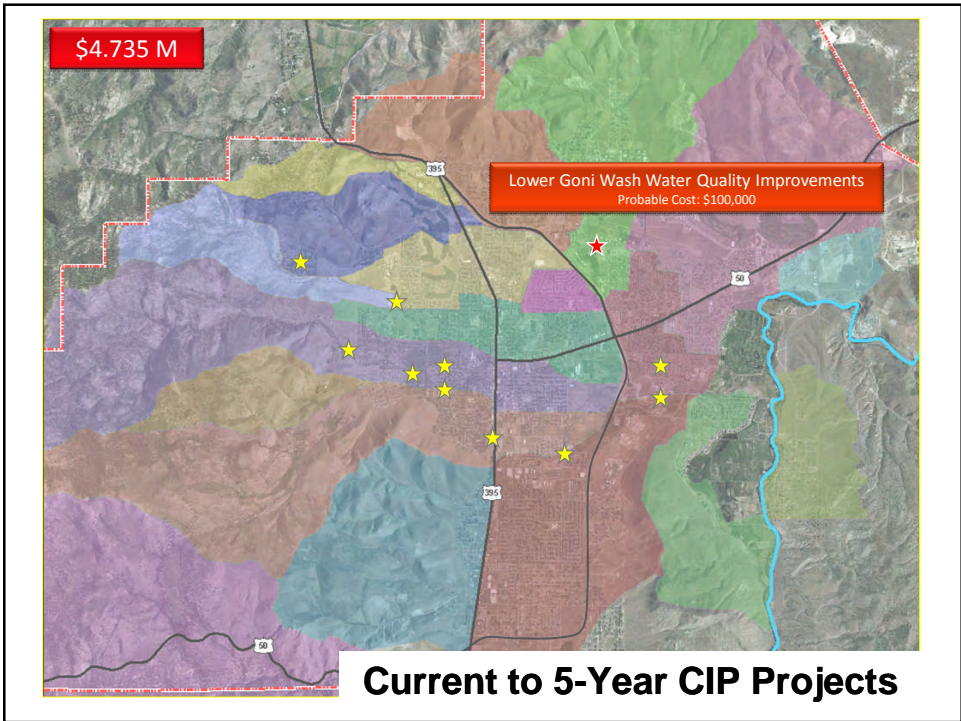
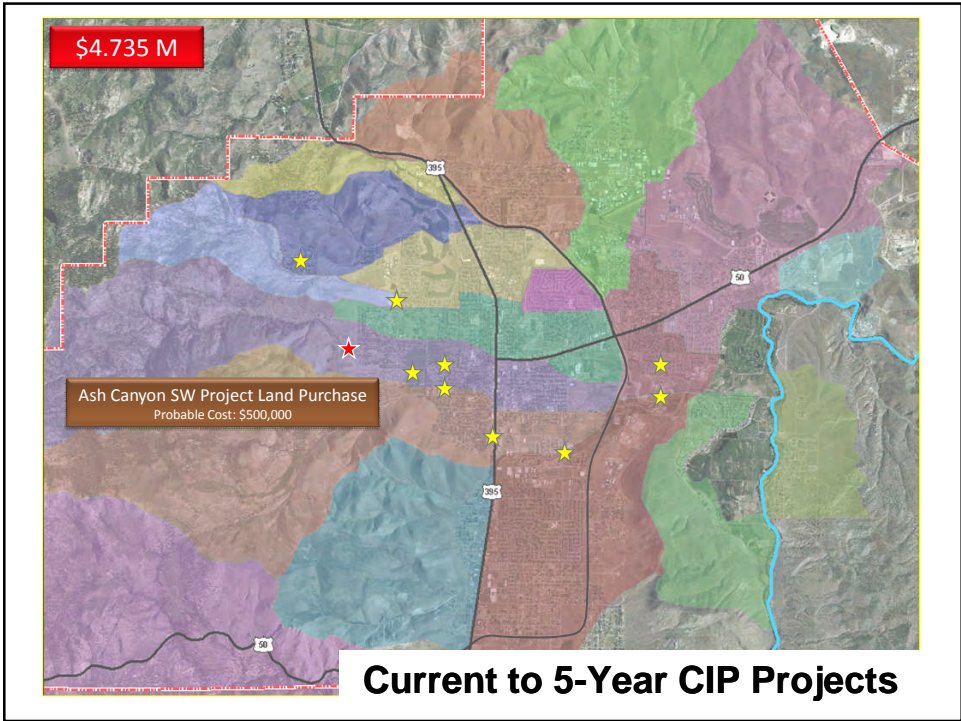


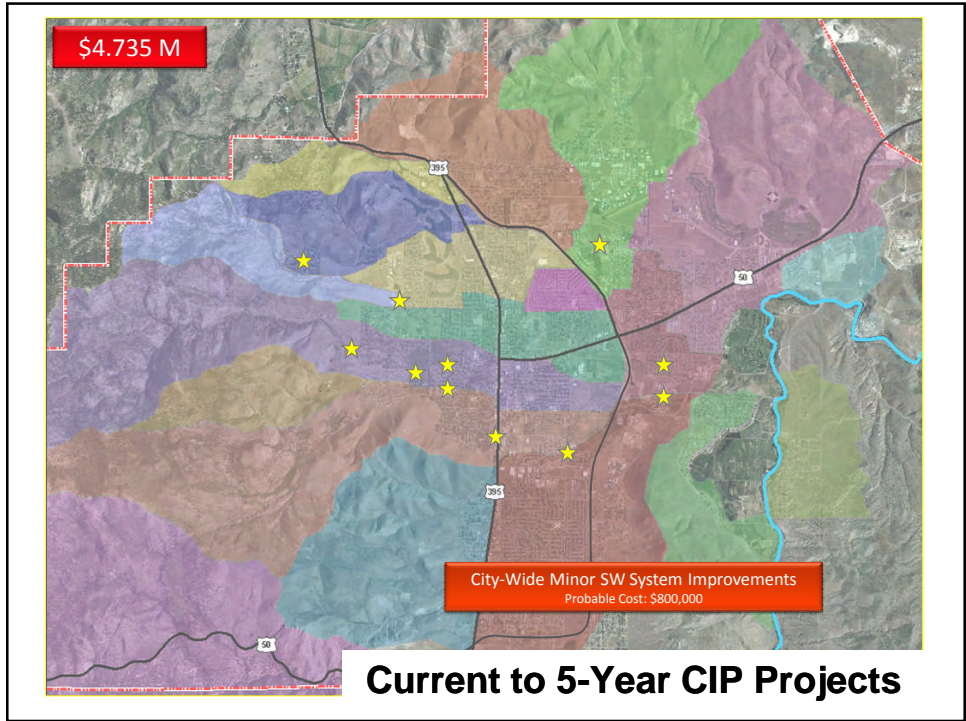












5-Year to 10-Year CIP Projects

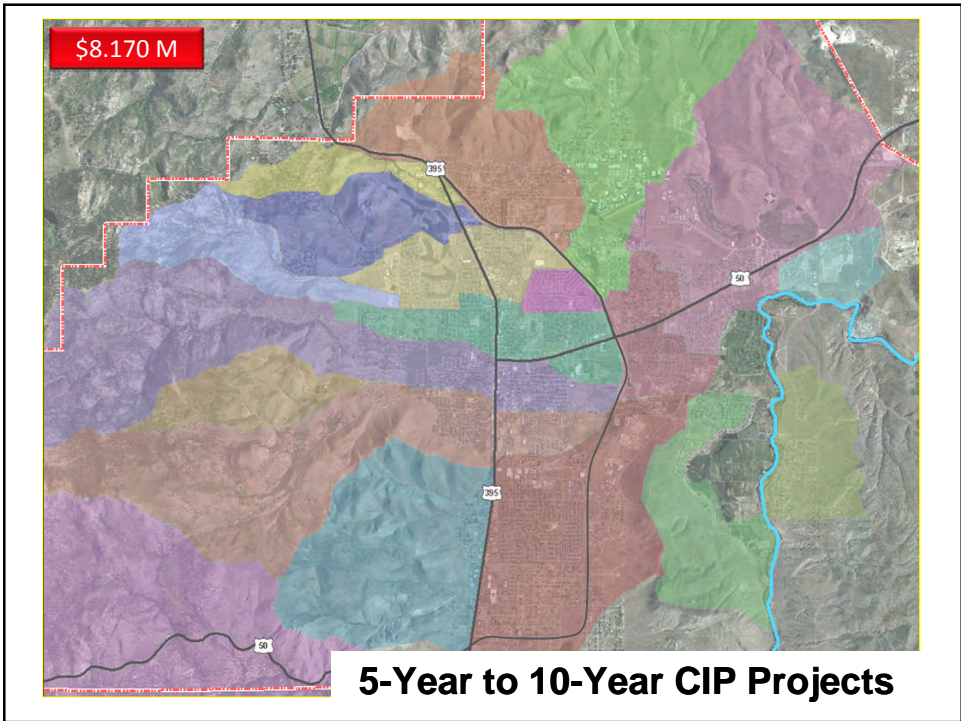
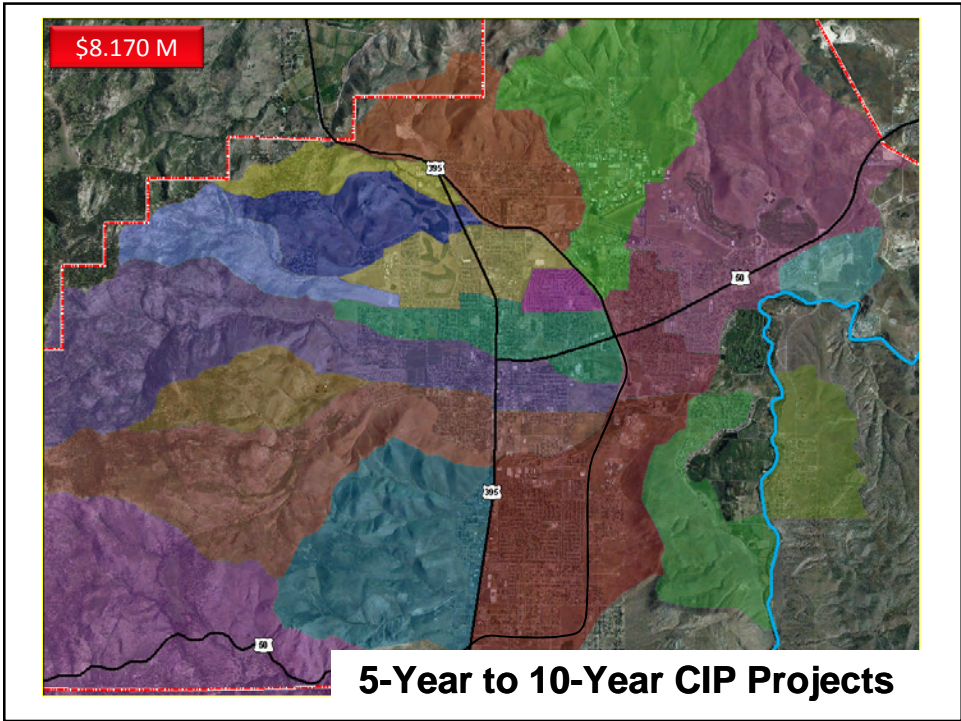
Program Summary

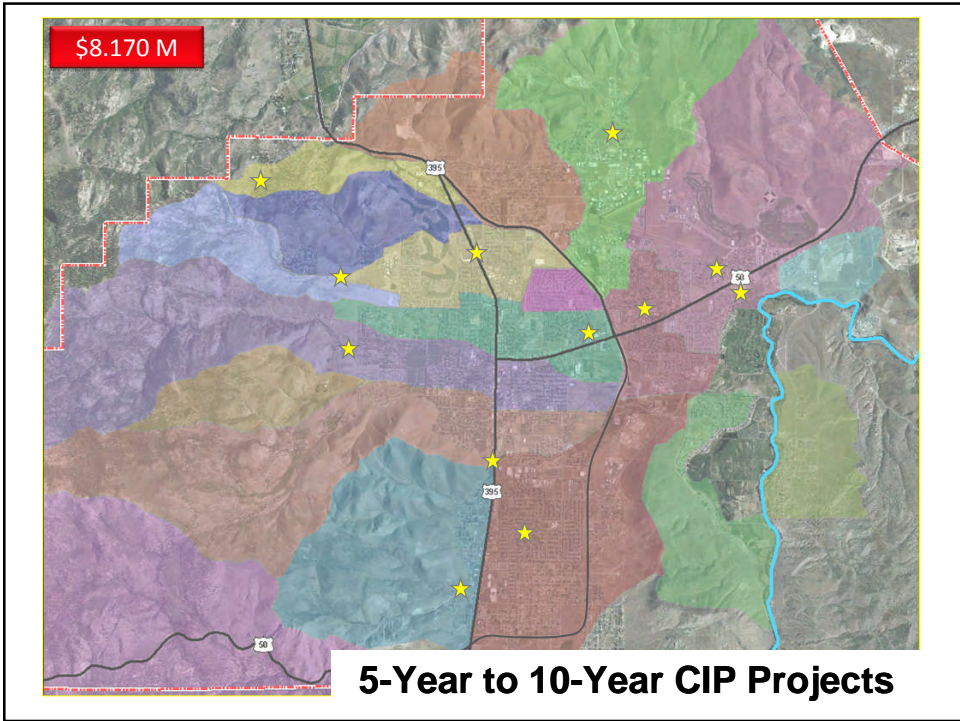
Fiscal Years	14/15 – 19/20
# of Projects	13
Estimates Costs	\$8.170 M
Affected Watersheds	10

Project Types /

New SW Systems	5
Upgrades of Existing SW System	4
Combination of Project Types	2
Water Quality Improvements	1
SW Required Land Purchases	1







10-Year to 20-Year CIP Projects

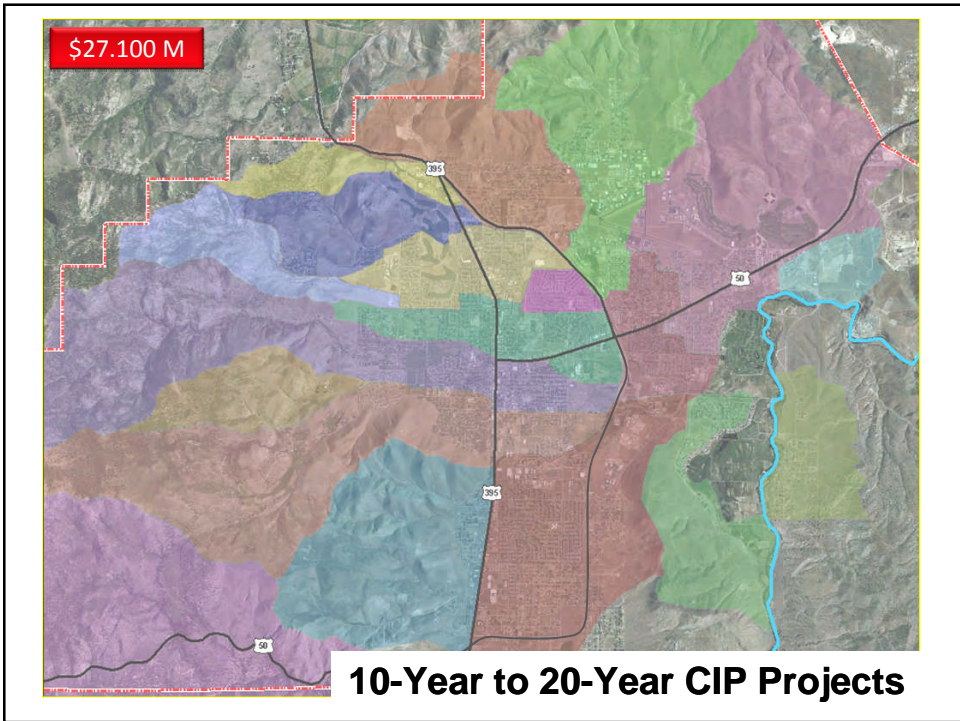
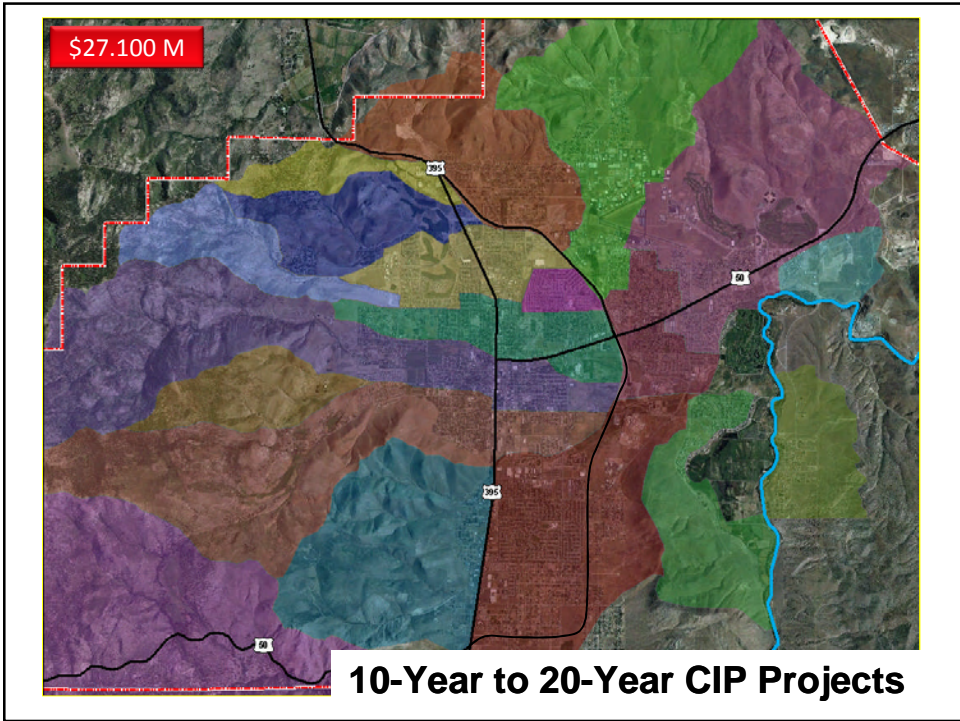
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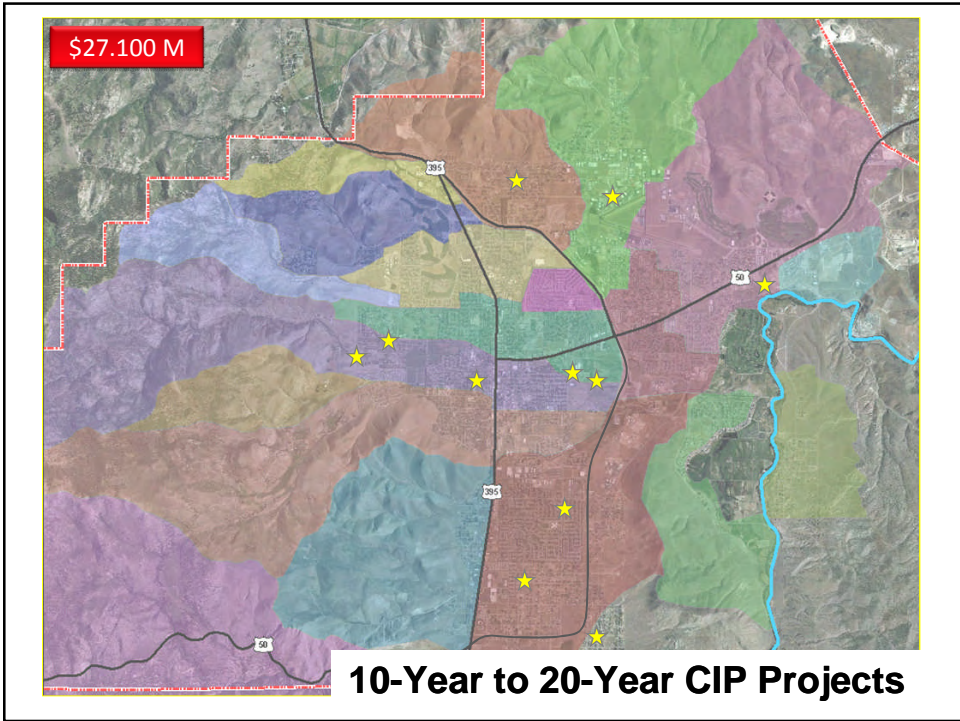
Fiscal Years	20/21 – 29/30
# of Projects	12
Estimates Costs	\$27.100 M
Affected Watersheds	8

Project Types /

New SW Systems	5
Upgrades of Existing SW System	3
Combination of Project Types	3
SW Required Land Purchases	1







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Floodplain Studies and Mapping Efforts



Stormwater Capital Improvements (CIP)



Where to Go From Here...



CARSON CITY



STORM WATER MANAGEMENT PROGRAM

Comments and Questions

