



City of La Quinta

CITY / SA / HA / FA MEETING DATE: October 7, 2014

AGENDA CATEGORY:

ITEM TITLE: DISCUSS SEPTEMBER 8, 2014 STORM
EVENT AND OPTIONS FOR REDUCING FUTURE
FLOOD DAMAGE

BUSINESS SESSION:

CONSENT CALENDAR:

STUDY SESSION: 1

PUBLIC HEARING:

RECOMMENDED ACTION:

Discuss conceptual drainage solutions in light of flooding damage sustained during the September 8 storm event.

EXECUTIVE SUMMARY:

- Through regional and local drainage improvements, the Federal Emergency Management Agency (FEMA) has removed virtually all properties in the City from the 100-year flood zone. This means that in any given year there is less than a one percent chance of flood waters inundating a residence in the City. Consequently, this has resulted in flood insurance not being required for most properties.
- The September 8 storm was categorized as a 200-year event in north La Quinta and between a 400-year to 1,000-year event in south La Quinta. The current City and FEMA design standard for flood control facilities is for a 100-year storm event.
- Staff has made flood assessments and prepared conceptual drainage projects for the areas that sustained the worst flooding during the September 8; these proposals would provide flood protection in excess of the current 100-year storm event standard.
- In order to determine their feasibility, the conceptual solutions would require preliminary engineering design including utility investigation and hydraulic modeling before detailed design and cost estimates could be prepared.
- In reviewing private property damage, staff has also compiled suggestions for homeowners and homeowner associations to help reduce flooding during future storms.

FISCAL IMPACT:

The cost to improve facilities beyond the current 100-year storm event standard could be as much as \$33 million. Possible funding sources include FEMA, the Federal Highway Administration, State Highway Bridge Program, Community Development Block Grant, and CVAG Regional Arterial Program funds.

The September 8 event caused an estimated \$2.02 million of damage to public facilities (e.g., buildings, roads, bridges, drainage facilities). Private property damage claims to date total nearly \$13.3 million, for a total estimated public and private damage of \$15.32 million.

BACKGROUND/ANALYSIS:

City Drainage Design Standard

The City's drainage design standard follows Riverside County development guidelines requiring 10-year storm waters to stay within the street curbs and parkways (i.e., public right-of-way) while 100-year storm waters will stay below the building pad elevations. Most desert cities accomplish this by requiring all development to capture and retain the 100-year storm waters in on-site storm water retention facilities. Included in this on-site retention is storm water from abutting streets.

The requirement to capture and retain street frontage water is in place because large storm drain systems (i.e., underground pipes) do not generally exist in the desert. Unlike many coastal communities, there are few major watercourses in the desert and drainage channels are often not low enough to allow positive drainage to the Whitewater or other regional drainage facilities. Therefore, it is anticipated that during the 100-year storm event, many roads will be flooded past the curbs and may impact garages and low lying structures. Nonetheless, these City standards as well as the regional drainage improvements led FEMA to remove virtually all properties in the City from the 100-year flood plain.

Conceptual Drainage Solutions

In reviewing the City's storm drain infrastructure (Attachment 1) combined with staff observations during the September 8 event, staff has prepared possible solutions to improve the three major storm drain systems that were overtaxed during the September 8 storm event. The following projects are listed in priority based on emergency access for the protection of life and safety followed by improvements for the protection of public and private property:

Washington/St. Francis/Lake La Quinta Drainage System - \$2 million

This system collects drainage water in catch basins along Washington Street and surrounding side streets from Avenue 47 to Avenue 50. The main outlets are located at Lake La Quinta and Avenue 50. This system is confined to Washington Street between

Avenue 47 and Avenue 50. The conceptual improvements that staff is investigating include adding a retention basin at Avenue 50 and Washington Street to allow water to overflow from the existing system draining into the low water crossing (Attachment 2, page 1) and connecting drywells on Washington Street and Lake La Quinta Drive to Lake La Quinta (Attachment 2, page 2). The approximate cost for these improvements is \$2 million.

Avenue 50 Bridge Project - \$10 Million to \$12 Million

Staff proposes to submit a grant application to construct a bridge at Avenue 50 at the low water crossing of the Evacuation Channel (Attachment 3). The Evacuation Channel drains the upper two-thirds of the Cove, all developments that drain to the Dunes Course (Oleander Reservoir), and all properties south of Avenue 50 and west of Washington Street. This existing low water crossing was closed during the September 8 storm event and is frequently closed due to heavy flows from seasonal rain storms. Emergency service providers also had to be routed away from this area. The bridge project will help keep water moving in the channel and maintain vehicular circulation during large storm events by reducing road detours and closures during the rainy season that will keep residents and visitors safe from potential harm. It will also maintain access to local businesses, parks, and schools and provide an important all weather east-west route. The estimated total cost for this project is \$10 million to \$12 million over 90 percent of which could be funded by a grant from the Federal Highway Administration and Measure A funds.

Eisenhower/Coachella/Evacuation Channel Drainage System - \$7 million

This system collects water in catch basins along Eisenhower Drive from Washington Street to Avenue 50 and outlets the water into retention basins. The system is confined to Eisenhower Drive and does not pick up drainage from the surrounding developments. The conceptual improvements include adding a new drainage system from Vista Laguna along Eisenhower Drive to a proposed retention basin near Coachella Drive; and reconfiguring the existing drainage system at Avenue 50 by upsizing the system to a 48" pipe and connecting the system directly to the Evacuation Channel to better drain the entrance to the Santa Rosa Cove community (Attachment 4). The approximate cost for the conceptual drainage improvements including land and/or drainage easement acquisition on the property to the west of the Legacy Villas is \$7 million.

Tampico/Rondo/Avenue 52/SilverRock System - \$12 million

This system spans many neighborhoods beginning in the Cove, draining through Calle Tampico, across the Civic Center Campus, into the Rondo Ditch, and finally outletting into a retention basin at SilverRock Resort (Attachment 5). This system is responsible for draining the area between Avenue 52 to Calle Tampico from Avenida Montezuma in the Cove to SilverRock Resort. The proposed improvements include upsizing the storm drains along the Rondo Ditch and Avenue 52 to a 54" pipe; upsizing catch basins at Avenida Carranza and Avenida Velasco; adding to the drainage system at Calle Sinaloa, Park Avenue, and the Rondo Ditch; adding a bypass to the Evacuation

Channel at Avenida Bermudas and Desert Club Drive; and constructing a pump station at the Rondo Ditch for the proposed drainage system along Park Avenue. The rough cost for the conceptual improvements is \$12 million.

Suggestions for Homeowners to Prepare for Extreme Storms

Homeowners can better protect their property (especially property that is in a low area) by:

- Installing and regularly maintaining roof drains.
- Maintaining the swales around their homes that direct water out to the street (houses built in the last 20 years included these when they were constructed).
- Having sand bags on hand for garages or lower lying structures or installing a pump below the floor level to remove water quickly.
- Monitoring irrigation to ensure no excess water is leaving the landscaped areas or ponding against the house. Irrigation water that flows down driveways or across sidewalks is a violation of the Coachella Valley Water District's mandatory water conservation measures and could reduce dry well capacity that would be valuable in extreme storms.

Suggestions for Homeowner Associations

To protect their members from flooding due to extreme storms, homeowner associations should ensure regular maintenance of all:

- retention basins (at least annually);
- dry wells (at least annually); and
- on-site drainage swales.

Also, by removing all sediment from drainage systems as soon as possible after a storm event, the design capacity of the system can be restored.

Local Flood Damage Financial Assistance

John Peña, a La Quinta resident, asked the City to look into the possibility of extending loans (secured by property taxes) to residents who experienced flood damage. Staff spoke to local banks and the Coachella Valley Association of Governments (CVAG). CVAG administers the local Property Assessed Clean Energy (PACE) program, which provides financing for home improvements centered on renewable energy, water conservation, and energy efficiency under State law.

Local banks do not readily have a program available, but expressed their willingness to work with the City to further explore the idea. It would take 60 to 90 days, at a minimum, to put something in place with local banks. In discussions with CVAG, the PACE program is already in place and, provided there is a nexus to energy efficiency and conservation, property owners can access financing from that program. Staff is in

discussions with CVAG and the program operator, Ygrene, to see if it is possible to expand the program for disaster relief.

Attachment 6 includes an overview of the types of repairs and improvements that qualify under the PACE program. The City will be hosting a workshop on the program with CVAG to further go over the program on Monday, October 20 at 4:30 p.m. at the La Quinta Museum. The City could request adding a component to the workshop agenda to discuss its application to recent property damage. Lastly, the City could explore the creation of a Community Facilities District, which would be more time intensive and take a minimum 120 days to implement.

Report prepared by: Ed Wimmer, P.E., Principal Engineer

Report approved for submission by: Timothy R. Jonasson, P.E.

Public Works Director/City Engineer

Attachments:

1. History of Drainage System Development in La Quinta
2. Washington/St. Francis/Lake La Quinta Drainage System map
3. Avenue 50 Bridge Project map
4. Eisenhower/Coachella/Evacuation Channel Drainage System map
5. Tampico/Rondo/Avenue 52/SilverRock Drainage System map
6. PACE Program eligible improvements

Historic Drainage System Development in La Quinta

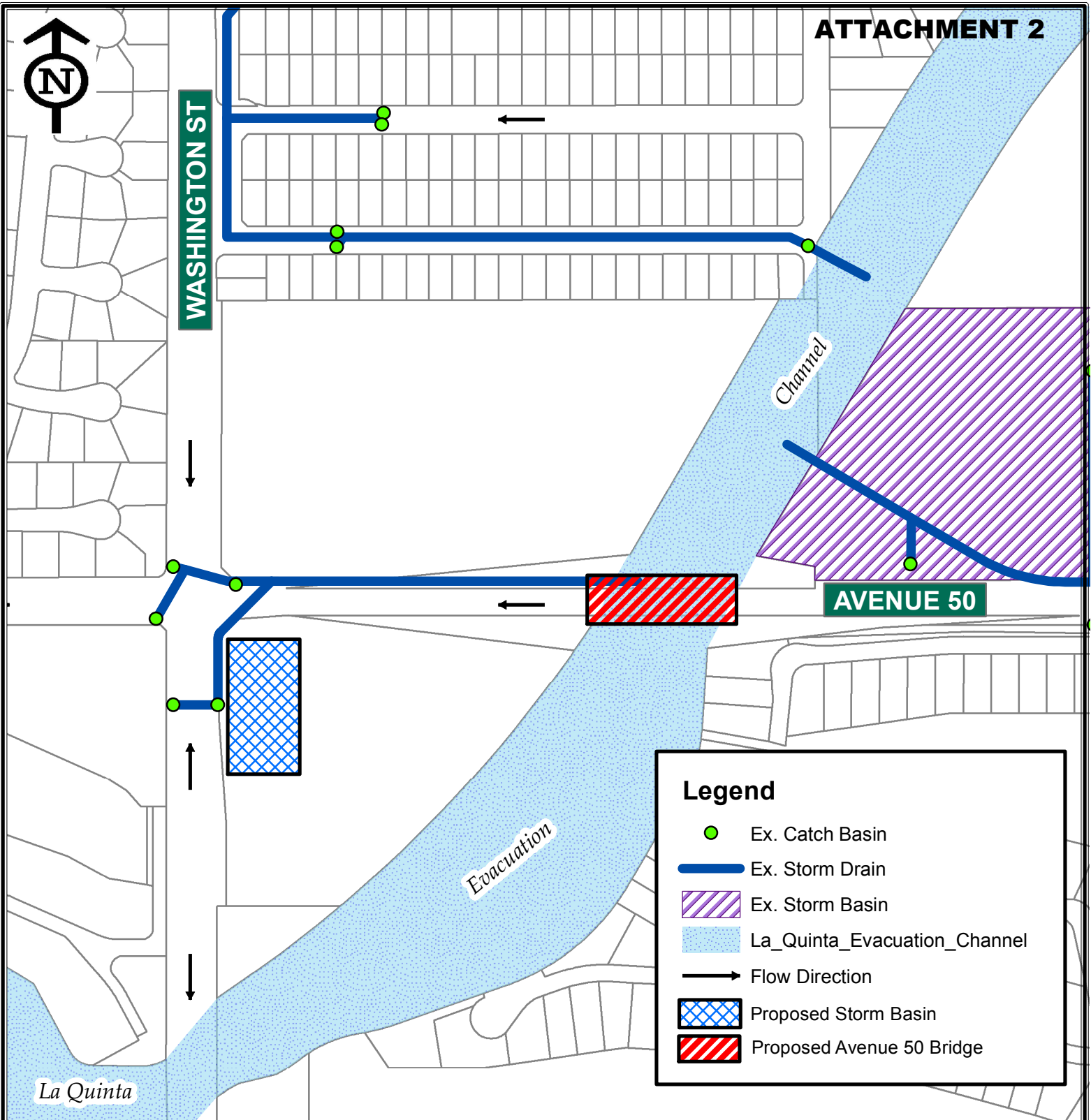
Over the years, much of the City's storm drain system was tailored to accommodate development around golf courses. This type of development assumed a large portion of retention would be handled by the golf courses. Thus, in extreme storms, damage to courses was expected in order to protect the homes. Properties immediately adjacent to barren hillsides of the desert are particularly susceptible to damage from runoff.

The Cove neighborhood particularly benefitted from improvements made by the Bureau of Reclamation including the Bear Creek Trail Training Dike at the south end of the Cove and the Bear Creek Channel in 1986 that provide flood protection from many of the storms that had regularly flooded this area. In the 1990's, the City's Redevelopment Agency funded street improvements in the Cove, including curb and gutter, that further protected private residences. The Coachella Valley Water District also added several parallel storm drain systems in Calle Nogales, Calle Madrid, Calle Colima, Calle Sonora and Calle Sinaloa that connect to a large 60-inch diameter pipe on the east side of the Cove that transmits flood waters to the Evacuation Channel. The Oleander Reservoir (i.e., the Dunes Course) and the Evacuation Channel provide the main stormwater conveyance system for the Cove, which eventually outlets to the Whitewater Channel. These improvements led FEMA to remove the Cove from the 100-year flood plain thereby eliminating their requirement for homeowners to purchase flood insurance.








In the lower Cove, the City developed a large box culvert system that transmits water from west to east mostly beneath Calle Tampico, Avenida La Fonda and Calle Rondo. In addition to the lower Cove neighborhood, this system takes stormwater from The Village, the La Quinta Civic Center and the Desert Club Estates neighborhood underneath Avenue 52 to an outfall at SilverRock Resort. In order to provide flow on very flat grades, this system is composed of different sizes of boxes and pipes which may not transmit flow as well as a uniform cross section stormdrain would. Hydraulic modeling would be necessary to verify this, however. This system was severely overcapacity in the 700-year event causing water levels to rise two to three feet above the curb line in several areas.

Developments along Eisenhower Drive rely almost exclusively on retention basins or golf course low areas for flood protection. The intersection of Avenue 50/Eisenhower is the low point for both streets with the only lower point being the lake at the 13th hole of the Dunes Golf Course (see Attachment). Other intersections on Eisenhower are in similar situations relying on either HOA maintained retention basins and dry wells to keep the intersections clear of stormwater. These systems quickly fill if not properly maintained in lesser storms and become completely overwhelmed in a large storm such as the one on September 8.

Similarly, stormwater is retained along Washington Street in retention basins and Lake La Quinta, which is the lowest point nearest the road. The City recently constructed a retention basin just south of Avenue 47 that, along with the storm drain in front of the St. Francis of Assisi Church, collects runoff from the southbound lanes. Drainage basins for the northbound lanes at Avenue 50 and at Lake La Quinta Drive are severely undersized resulting in two to three feet of water at these locations compromising emergency vehicle access.



Legend

-  Ex. Catch Basin
-  Ex. Storm Drain
-  Ex. Storm Basin
-  La_Quinta_Evacuation_Channel
-  Flow Direction
-  Proposed Storm Basin
-  Proposed Avenue 50 Bridge

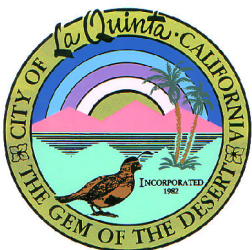
VICINITY MAP
Not to Scale

CITY COUNCIL MEETING: October 7, 2014

ITEM TITLE: DISCUSS SEPTEMBER 8, 2014 STORM EVENT AND OPTIONS FOR REDUCING FUTURE FLOOD DAMAGE
 Location: Washington/St. Francis/Lake La Quinta Drainage System

DEPT. DIRECTOR: Timothy R. Jonasson, P.E., Public Works Director/City Engineer

STAFF CONTACT:



Legend

- Ex. Catch Basin
- Ex. Storm Drain
- ▨ Ex. Storm Basin
- Flow Direction
- Proposed Storm Drain

Ex. Storm Basin

St. Francis Church

Ex. Storm Basin

Ex. Storm Basin

Lake La Quinta

LAKE LA QUINTA DR

WASHINGTON ST

AVENUE 47

CALEO BAY



VICINITY MAP

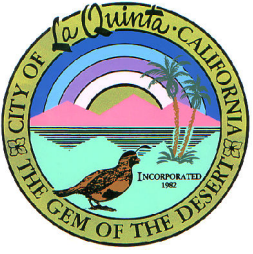
Not to Scale

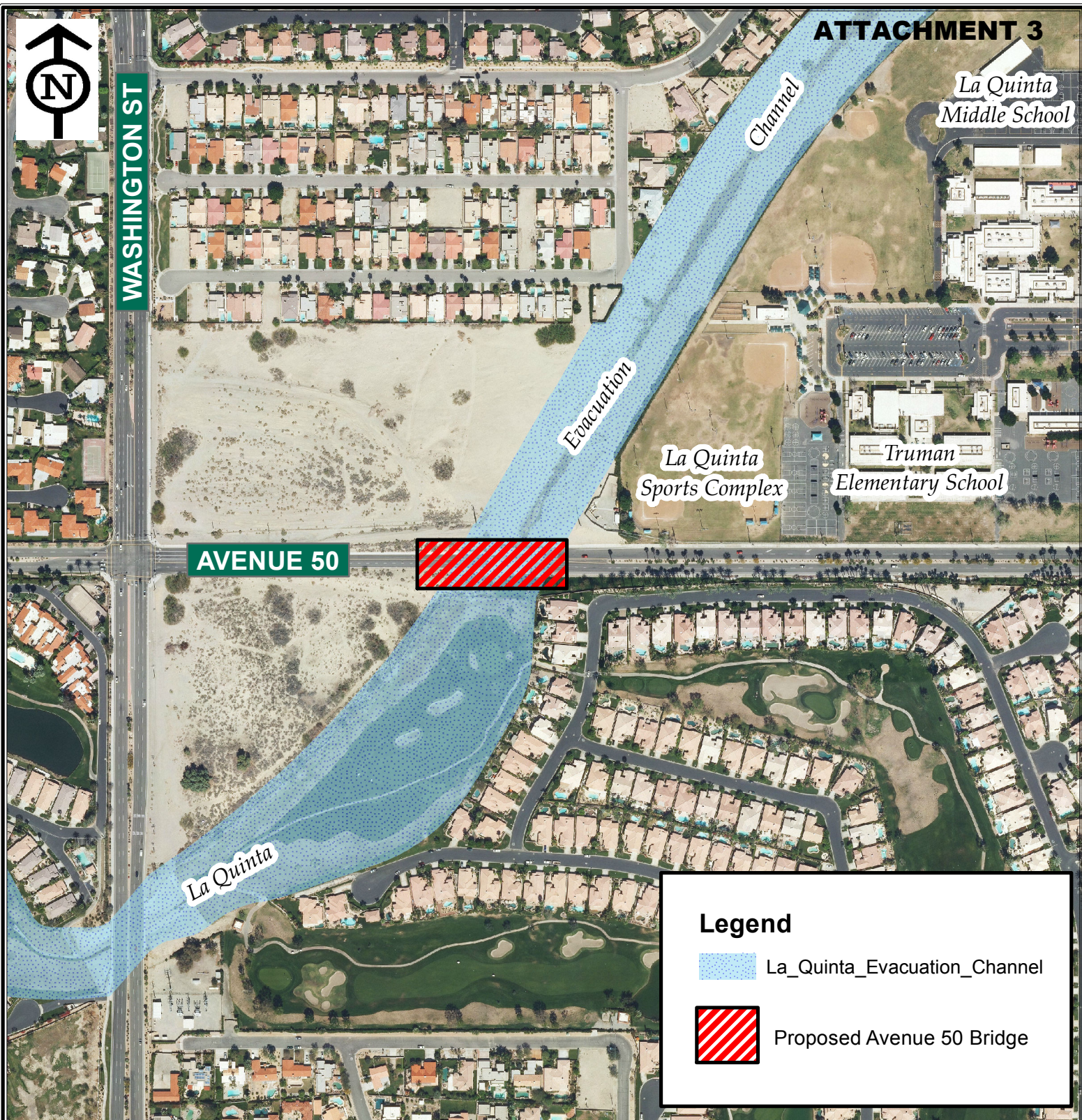
CITY COUNCIL MEETING: October 7, 2014

ITEM TITLE: DISCUSS SEPTEMBER 8, 2014 STORM EVENT AND OPTIONS FOR REDUCING FUTURE FLOOD DAMAGE
Location: Washington/St. Francis/Lake La Quinta Drainage System



DEPT. DIRECTOR: Timothy R. Jonasson, P.E., Public Works Director/City Engineer

STAFF CONTACT:





Legend

-  La_Quinta_Evacuation_Channel
-  Proposed Avenue 50 Bridge

VICINITY MAP

Not to Scale

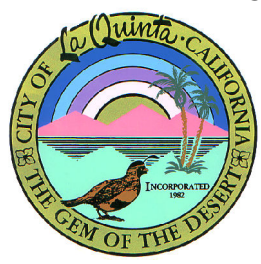
CITY COUNCIL MEETING: October 7, 2014

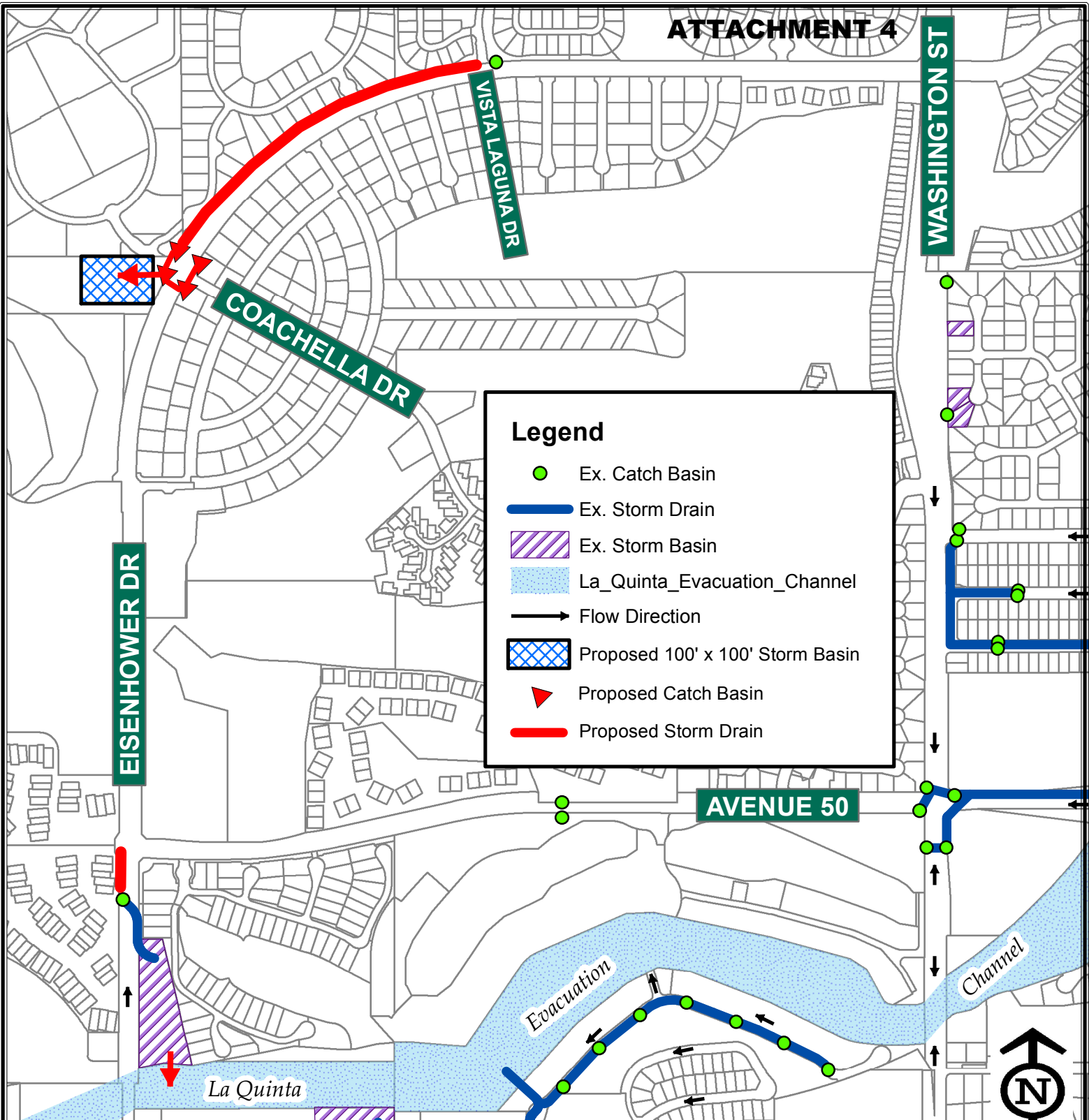
ITEM TITLE: DISCUSS SEPTEMBER 8, 2014 STORM EVENT AND OPTIONS FOR REDUCING FUTURE FLOOD DAMAGE

Location: Avenue 50 Bridge Project

DEPT. DIRECTOR: Timothy R. Jonasson, P.E., Public Works Director/City Engineer

STAFF CONTACT:





Legend

- Ex. Catch Basin
- Ex. Storm Drain
- Ex. Storm Basin
- La_Quinta_Evacuation_Channel
- Flow Direction
- Proposed 100' x 100' Storm Basin
- ▲ Proposed Catch Basin
- Proposed Storm Drain

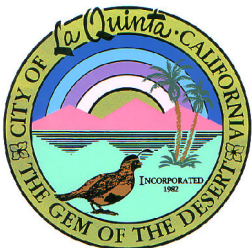
VICINITY MAP
Not to Scale

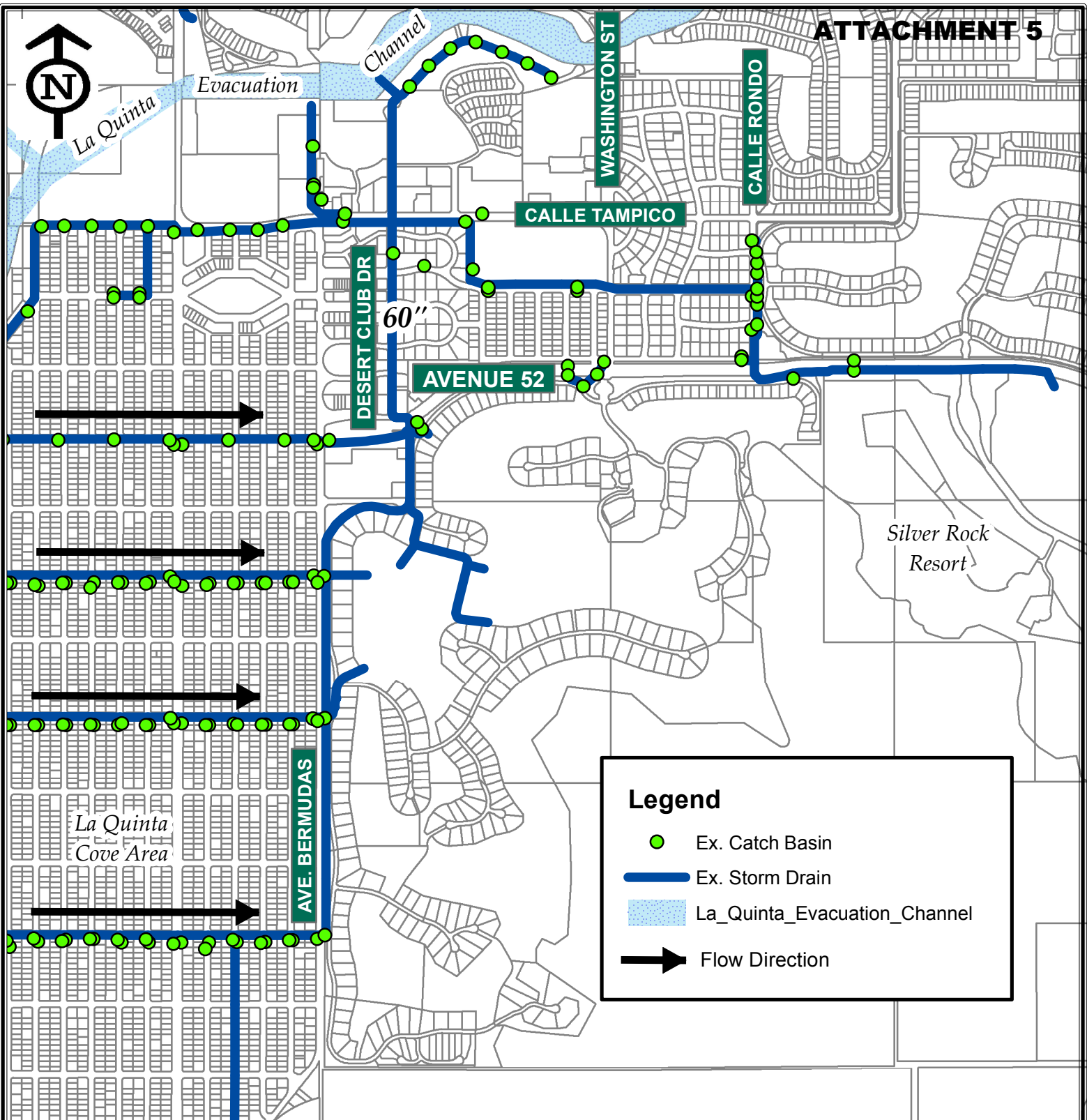
CITY COUNCIL MEETING: October 7, 2014

ITEM TITLE: DISCUSS SEPTEMBER 8, 2014 STORM EVENT AND OPTIONS FOR REDUCING FUTURE FLOOD DAMAGE
Location: Eisenhower/Coachella/Evacuation Channel Drainage System

DEPT. DIRECTOR: Timothy R. Jonasson, P.E., Public Works Director/City Engineer

STAFF CONTACT:





VICINITY MAP

Not to Scale

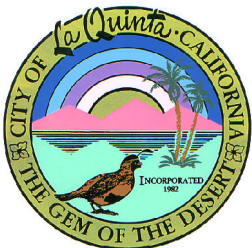
CITY COUNCIL MEETING: October 7, 2014

ITEM TITLE: DISCUSS SEPTEMBER 8, 2014 STORM EVENT AND OPTIONS FOR REDUCING FUTURE FLOOD DAMAGE

Location: Tampico/Rondo/Avenue 2/SilverRock System

DEPT. DIRECTOR: Timothy R. Jonasson, P.E., Public Works Director/City Engineer

STAFF CONTACT:



ELIGIBLE IMPROVEMENTS

RENEWABLE ENERGY

Emerging technologies
Photovoltaic systems (electricity)
 Solar thermal hot-water systems
 Solar thermal systems for pool heating

Solar PV systems can reduce your electricity bills by up to 80%, saving you money and enabling you to produce your own energy from a clean, sustainable source.

ENERGY EFFICIENCY

Additional building openings for natural light
 Air filtration
 Air sealing and ventilation
 Attic, floor, walls, roof, ducts
 Bathroom, ceiling, attic, and whole-house fans
 Building envelope
 Classroom lighting
Cool roof
 Defect correction
 Evaporative coolers
 Geothermal exchange heat pumps
 HVAC systems
 Insulation
 Kitchen exhaust variable air-volume controls
 Lighting (fixture retrofits only)
 Natural gas storage water heater
 Occupancy-sensor lighting fixtures
 Pool equipment
 Reflective insulation or radiant barriers
 Refrigerator case LED lighting
 Sealing & duct leakage
 Skylights
 SMART parking-garage bi-level fixtures
 SMART parking-lot bi-level fixture
 SMART pathway lighting
 SMART wall-pack fixtures
 Solar tubes
 Solar water heater system
Tankless water heater
 Task ambient office lighting
 Weather stripping
 Window filming
 Windows and glass doors
 Wireless daylight-lighting controls
 Wireless HVAC controls & fault detection

WATER CONSERVATION

Cooling-condensate reuse
 Cooling-tower conductivity controllers
 Core-plumbing system
 Deionization
 Demand initiated hot-water system
 Demand water softener
 Faucet aerators
 Filter upgrades
 Foundation drain water
 Grey-water system
High-efficiency toilets
 Hot-water pipe insulation
 Industrial-process water-use reduction
 Instantaneous hot-water heater
 Irrigation-control system
 Irrigation system
 Low-flow showerhead
 Pre-rinse spray valves
 Rainwater cistern
 Recirculation hot-water system
 Recycled water source
 Urinals
 Waterless urinals
 Whole-house water-manifold system

Replacing your aging or leaky roof with a cool roof that reflects the sun's heat is a long-term improvement that can last 20 or more years. Cool roofs save you money by reducing your air conditioning demands in warmer weather.

Upgrading your home's toilets, plumbing fixtures and irrigation systems can reduce your water consumption by 50,000 gallons annually.

By heating only the hot water you need when you need it, demand initiated, or tankless, hot water heaters are 25-35% more efficient than conventional systems.

ELIGIBILITY REQUIREMENTS

15% Equity in the Property

Current on Mortgage Payments for 3 Years

Current on Property Taxes for 3 Years

No Bankruptcy for 3 Years

Minimum Finance Amount of \$2,500

CUSTOM MEASURES

Building energy-management controls
 Co-generation (heat and energy)
 Emerging technologies
 Fuel cells
 HVAC duct zoning-control systems
 Hydrogen fuel
 Industrial equipment, motors and controls
 Irrigation pumps and controls
 Lighting controls
 Natural gas
 Other fuel sources
 Wind-turbine power system

