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## Colorado River Basin Regional Water Quality Control Board

**TO:** Matthew Rodriquez, Chairman  
California-Mexico Border Relations Council

**FROM:** Jose L. Angel, P.E.  
Co-chair Technical Advisory Committee for New River Strategic Plan

**DATE:** January 11, 2016

**SUBJECT:** Proposed Revised Recommendations for Calexico Reach of New River

Dear Chairman Rodriquez,

On behalf of the Technical Advisory Committee (TAC) charged with drafting the New River Improvement Project Strategic Plan, I am respectfully submitting for the California-Mexico Border Relations Council's consideration revised structural recommendations for the New River in the Calexico area. These revised recommendations are a natural evolution of the original recommendations contained in the Strategic Plan and are necessary to address fiduciary constraints and declining New River flows at the International Boundary. They are also necessary to maximize environmental benefits downstream from Calexico. This memorandum provides an overview of the TAC's proposed revised recommendations for Calexico, background on the matter, details on the proposed revised recommendations, and the rationale for them.

### **Overview of Proposed Revised Recommendations**

The 2011 New River Improvement Project Strategic Plan envisions a River Parkway for the City of Calexico, near and around the current channel of the New River in Calexico, just north from the International Boundary. It also recommends three key structural units/components to address the human health and environmental hazards associated with the water quality of the New River in the Calexico area so that the River Parkway can safely materialize. These components are: (1) a trash screen, (2) a conveyance structure, and (3) a disinfection facility. Under this strategy, the trash screen would be located immediately downstream from the International Boundary; the conveyance structure is necessary to pipe the River from the International Boundary to the disinfection facility; and the disinfection facility would be located at a point sufficiently far from and downstream of the proposed River Parkway (e.g., near the existing City of Calexico Wastewater Treatment Plant).

Construction of Phase 1 of the River Parkway—a bicycle and pedestrian pathway—is presently taking place. However, completion of the River Parkway, as envisioned in the Strategic Plan, was contingent on the construction of the disinfection facility. With an estimated price tag of \$85M and an annual Operations and Maintenance (O&M) cost of \$4.5M, the disinfection facility is of questionable utility in light of the accelerated decline of the New River's flow at the Border with Mexico and the availability of a more ecologically and fiscally sound strategy. This revised strategy would still include the first two structural components originally recommended in the Strategic Plan (the trash screen and the conveyance structure) and fundamentally address the above-mentioned human health and environmental hazards. However, it would eliminate the

disinfection facility and instead, would focus treatment of the New River using constructed wetlands and aeration structures downstream from Calexico (e.g., between Highway 98 and Seeley). This revised strategy for the Calexico area would have more diverse and longer-lasting benefits to the region, including habitat, water quality, and recreational opportunities; it would be significantly more cost-effective; and it would result in the quality of the water that reaches communities downstream from Calexico, and ultimately the Salton Sea, being at more acceptable levels for pollution. Fundamentally, it would also allow the New River Parkway Project to materialize. The following sections of this memorandum describe the revised approach, including potential funding sources and tentative timelines.

### Background

In December 2011, the “Strategic Plan: New River Improvement Project” (“Strategic Plan”) was submitted by the New River Improvement Project TAC to the California-Mexico Border Relations Council (CMBRC), pursuant to AB 1079 (Perez, 2009). The recommendations of the TAC were both regulatory and structural in nature. The current structural recommendations for the New River in the Calexico area are a trash collection screen immediately downstream of the Border, a conveyance system, and a disinfection facility. The conveyance system would capture the average flow of the New River immediately downstream from the Border and pipe it to the disinfection facility. To date, substantial progress has been made in implementing all of the regulatory recommendations in the Strategic Plan, but very few of the structural recommendations have been implemented, particularly the recommendations for the Calexico area, primarily due to lack of funding. Table 1, below, shows the capital and O&M costs for the structural components recommended for the New River in Calexico and downstream from Calexico.

**TABLE 1 - CURRENT PROPOSED NEW RIVER IMPROVEMENT PROJECTS IN THE USA**

New River Projects in USA <sup>1</sup>			
Project	Location	Projected Cost	O&M Costs/year
Trash Screen	Calexico, immediately downstream of US-Mexico Border <sup>2</sup>	\$4,000,000	\$100,000
New River Conveyance System	Calexico, from the Border to approximately City of Calexico WWTP	\$17,000,000	\$50,000
<b>New River Disinfection Facility</b>	<b>Calexico, at or near City of Calexico WWTP</b>	<b>\$86,400,000</b>	<b>\$4,500,000</b>
New River Aeration structures	Various locations, downstream from Calexico	\$250,000 <sup>3</sup>	<\$10,000
Constructed wetlands (11 sites, totaling 1523 acres)	Various locations, downstream from Seeley <sup>4</sup>	\$50,000/acre	\$20,000/acre

<sup>1</sup> Unless otherwise stated, the source for the projects and their costs is the “*New River Improvement Project Strategic Plan, December 2011.*”

<sup>2</sup> Trash screen, conveyance system, and disinfection facility would require approval from the federal agencies (DHS, Customs, State Department, USEPA, IBWC).

<sup>3</sup> CRWQCB, Region 7.

<sup>4</sup> Desert Wildlife Unlimited, in coordination with various federal and local agencies has been the lead for constructed wetlands in the Imperial Valley.

<b>TOTAL</b>	<b>\$183,950,000</b>	<b>\$35,120,000</b>
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The only objective the disinfection facility would serve is to eliminate the public health threat by reducing the level of pathogens the River carries in the Calexico area so they meet California’s pathogen-indicator standards for the River. Once treated, the water from the Disinfection Facility could be piped back into the New River, either at the point where it crosses the California/Mexico Border, at a point midway through the Calexico New River Parkway, or at the point where the New River crosses the American Canal (see Figure 1).

**FIGURE 1 - CURRENT PROPOSED STRUCTURAL PROJECTS FOR NEW RIVER IN CALEXICO**



**Fiduciary, Hydrological, and Policy Concerns**

As shown in Table 1, above, the total funding requirements for the structural components recommended for the New River in Calexico are approximately \$107.4 million in capital costs, with collective annual O&M costs of \$4.65 million. Of those costs, the most significant is the New River Disinfection Facility, which accounts for slightly over 80% of the costs for components for Calexico. The life span of the disinfection facility itself would be 25-30 years; at the end of its useful life, the facility’s capacity would outstrip the demands for disinfection. Assuming a 30 year lifespan, the total costs of the facility would be \$221.4M (nominal value/not adjusted for inflation), assuming no exceptional O&M needs.

As currently described in the Strategic Plan, the conveyance system and disinfection facility would have capacity to handle an average New River flow of 140 cubic feet per second (approximately 75 million gallons per day). In 2014, the average flow in the New River at the International Boundary was approximately 106 cfs (approximately 57 mgd),<sup>5</sup> but flows are projected to continue to drop by as much as 30-50% in the short-term (within the next 10-15 years) and to near zero in the long-term, as Mexico retains and treats more of the wastewater currently drained into the New River for its own beneficial uses.<sup>6</sup>

The Strategic Plan states that the River Disinfection Facility was proposed because “it would be both difficult and undesirable to enclose or bury the New River through Calexico [and then send it untreated to other communities downstream from Calexico (e.g., Seeley, Brawley, Westmorland)], as Mexicali has done, because of a variety of regulatory, environmental and

<sup>5</sup> Based on data from the USGS Gauge Station for the New River at the International Boundary at Calexico.

<sup>6</sup> The Natural Resources Agency’s Programmatic EIR for Restoration of the Salton Sea assumes zero flow at the Border in the long-term.

water quality constraints<sup>7</sup>.” While the Strategic Plan does not identify what the constraints are, staff from the Colorado River Basin Water Board reports that one of the constraints is a provision in Title 40 of the Code of Federal Regulations (Part 131) that prohibits the elimination of “existing beneficial uses” of surface waters.<sup>8</sup> Another policy concern would be related to channelization of an impaired waterway to avoid addressing its impairments. However, SB 387 (Ducheny, 2005) addressed this issue by providing special exception for “the encasing and piping of the New River to protect human health and the environment.” Additionally, treatment downstream of the proposed piping location in substantive part addresses the concern of sending the River untreated to other communities downstream from Calexico or trying to avoid addressing the impairments. Further, treated water is readily available to put back into the River channel, immediately downstream from the Border, so that the “loss” of beneficial uses for the piped segment would be at worse de minimis.

### Outlining an Alternative Approach

An alternative approach to addressing the New River’s water quality does not need to vary wildly from the approach already proposed in the Strategic Plan. In fact, the main components of the proposal, including the trash screen, conveyance system, aeration structures, and constructed wetlands, would remain. The main change would be to forego the disinfection facility and to use the conveyance system to bypass the proposed Parkway and substantively bypass Calexico so that the water would be discharged at a point that significantly minimizes threat to public health (e.g., near Highway 98). This approach could also include re-routing (e.g., by pumping and piping) up to 4 mgd of treated wastewater from the City of Calexico WWTP back to the River channel at the Border. If this component is included, the total capital costs for the structural components for Calexico would be approximately \$22M plus \$160,000 in annual O&M. Table 2, below, details the revised costs for Calexico.

**TABLE 2 – PROPOSED REVISED NEW RIVER IMPROVEMENT PROJECTS FOR CALEXICO<sup>9</sup>**

Project	Location	Projected Cost	O&M Costs/ year
Trash Screen	Calexico, immediately downstream of US-Mexico Border <sup>10</sup>	\$4,000,000	\$100,000
New River Conveyance System	Calexico, from the Border to approximately City of Calexico WWTP	\$17,000,000	\$50,000
Pump-back system for Treated Wastewater from Calexico WWTP	City of Calexico WWTP booster pump, plus piping back to the Border	\$1,100,000 <sup>a,b</sup>	\$10,000
Total for Calexico		\$22,100,000	\$160,000

<sup>7</sup> New River Improvement Project Strategic Plan (p. 71).

<sup>8</sup> 40 CFR 131.10(h). By piping the River from the Border to a point near to or downstream from the Calexico WWTF, the piped segment of the River would lose its beneficial uses (e.g., REC-I (contact) and REC-II (non-contact) uses), which are “existing uses.” This term is defined as follows: “Existing uses are those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards.” (40 CFR 131.3(e).) Because the beneficial uses of REC-I and REC-II are documented to have been attained, they are “existing uses.”

<sup>9</sup> Unless otherwise stated, the source for the projects and their costs is the “*New River Improvement Project Strategic Plan, December 2011.*”

<sup>10</sup> Trash screen and conveyance system would require approval from the federal agencies (DHS, Customs, State Department, USEPA, IBWC).

<sup>a</sup> This cost would only be \$600,000 if plastic pipe is used instead of steel pipe.

<sup>b</sup> Revised costs provided by CalTrans.

Downstream from Calexico, this proposed revised strategy would then rely on the natural infrastructure of the wetlands and aeration structures, *which are already envisioned in the plan* to remediate pathogens and increase dissolved oxygen levels, while the trash screen would address the trash issue. The benefits of this approach include:

- **Public Health and Environmental Risks:** Because the River would no longer flow through downtown Calexico, all human health and environmental risks would be eliminated.
- **Environmental Benefits:** through the creation of natural infrastructure to remediate pathogens and increase dissolved oxygen levels, the New River's water quality improvements would also lead to habitat creation, more attractive open space for recreation, etc. In addition, this natural infrastructure would also provide remediation benefits to runoff from nearby agricultural lands in reaches 2-4—benefits that would not be provided by the Disinfection Facility (since it would only treat water as it crosses the Border).
- **Cost:** capital cost savings of **\$86,400,000** and annual O&M costs savings of **\$4,400,000**. Over a 30 year period that would be a total savings of close to **\$221 million dollars**.
- **Calexico New River Parkway Project:** This approach would allow the Parkway Project to move forward and materialize as envisioned in the Strategic Plan and without delay.

Potential considerations/issues include:

- **Concerns about converting the “natural” New River to an artificial channelized/piped one.** As already noted, the New River is not a naturally occurring body of water, and the current proposal in the New River Strategic Plan involves piping the River through a conveyance system to the Disinfection Facility for treatment. Both scenarios therefore involve channelization/ piping. Returning treated flows from the Disinfection Facility would not be “natural,” but rather would be a man-made feature akin to a large “open water feature.”
- **Desire for an “open water feature” in the New River Parkway.** Despite its man-made nature, there may be a desire for an “open water feature” in the New River Parkway. While the above revised proposal includes piping the New River flows beyond the City of Calexico, it could be possible to add an “open water feature” to the Parkway by having a “pump back system” to pipe flows from the existing City of Calexico Wastewater Treatment Facility to the head of the New River Parkway. This would involve additional associated costs for piping up to 4 million gallons per day of treated wastewater, and there may arguably be more beneficial uses of this treated wastewater, but its current quality undoubtedly meets the state water quality standards for contact and non-contact recreation. The costs for this additional infrastructure, however, are relatively minor in relationship to the overall costs for the other two structural components for the Calexico area (\$1.1M capital cost using a steel pipe, and approximately \$0.6M using a plastic pipe). This cost includes the capital costs for a booster pump.

- **Changing/updating the New River Plan, and buy-in from the community.** It will be important to socialize this proposal with the community—particularly in Calexico—as well as other stakeholders to ensure buy-in and full support.

### **Summary**

The current New River Improvement Project Strategic Plan recommends a trash screen, a conveyance system, and a disinfection facility to deal with the public health threat the New River poses in the Calexico area and so that Calexico can build a River Parkway downstream from the International Boundary. There are fiduciary concerns about the projected capital and operation and maintenance costs associated for the disinfection facility (more than \$221M over the projected 25-30 life expectancy for the facility). There are also legitimate concerns about accelerated decline of New River transboundary flows from Mexico. In light of the foregoing, the TAC recommends an alternative approach to deal with the public health threat the New River poses in Calexico. The originally recommended trash screen and conveyance systems would still be part of the alternative approach, but the disinfection facility would be eliminated. In its place, the approach would instead use constructed wetlands and aeration structures downstream from Calexico (e.g., between Highway 98 and Seeley) to address New River impairments. This approach addresses fiduciary, environmental, and policy concerns. It also addresses declining New River transboundary flows from Mexico.

Dear Secretary Rodriguez, we appreciate the opportunity to serve you and the Council and present these proposed revised recommendations for its consideration. We also look forward to feedback from the Council on the matter. In the meantime, if you or your staff have any questions about this matter, please contact me at (760) 776-8932. Thanks.