

## **Analysis of Impacts and Mitigation Measures – Open Channel vs. Parallel Culvert**

This report will provide a side by side comparison of the open channel vs. the parallel culvert option as described in the EIR as Alternative 3 “Recreation Alternative”. It will identify specific components of Phase I and II that can be modified or eliminated and still meet all project objectives. According to the EIR “the parallel culvert would be the same size as the existing culvert”. The parallel culvert as described achieves over 90% of the tidal flush values of the open channel option. In conversations with the City an assertion was made that a parallel culvert could match the OC in flow volume. The City asked M&N to comment on the assertion, per an email, dated 9/09/08 (attached), Moffat and Nichol agrees that a parallel culvert can match the flow of the open channel, “I don’t disagree with him that we could achieve the same tidal flushing with a second parallel culvert”.

In the analysis below OC is used as an abbreviation for the open channel and PC is used for the parallel culvert.

### **Mitigation and Monitoring Reporting Program**

There are fundamental differences between the OC and PC options that will percolate through most if not all of the mitigation measures. The discussion below will identify three fundamental differences and discuss the impact those differences have on the mitigation measures. The discussion will show what mitigation measures are at a minimum the same (impact), what reduce the required mitigation measure (impact) or completely eliminate the need for mitigation. The analysis will clearly show that construction of the PC alternative has substantially less impact on the surrounding community than the OC.

A comparison of the parallel culvert and open channel yield the following conditions that will have an impact on all mitigation measures in terms of **duration of construction**, **total disturbed area**, and impact on **water quality** as a result of the means and methods of construction required for the two options.

**Duration of Construction** – Duration of construction of the open channel is not stated in Section 3.0. Based on the description of the construction process and assuming no delays in construction the open could be constructed in 8 – 12 weeks. The bridge construction, according to Section 3.5.1, will take 6 months each for a total of 12 months. Total construction time for the open channel 14-15 months minimum. The most probable duration would be 18 months (based on professional opinion).

The parallel culvert construction duration using precast concrete box sections could be completed within 8 weeks, of initial excavation, including inlet and outlet structures. The portions across the roadways could be installed within a week each. A cast in place box culvert could be completed within 16 weeks. These time frames have been discussed with two contractors and deemed reasonable based on the description of the project.

The most likely delays that could happen from a construction stand point are: adverse soil conditions, and delays due to weather and a delay do to presence of a sea turtle or marine mammal within 500m as prescribed in mitigation measure BIO-10. The adverse soil condition would cause a delay in either alternative. The PC removes much less soil than the OC and thus would be less liable to encounter adverse (or possible toxic) soil conditions. The same is true for weather, a shorter duration project is at less risk of being delayed than a longer duration project.

The PC can be constructed in a much shorter time frame and is less likely to be affected by unknown conditions and adverse weather. Therefore it is reasonable to assume that any mitigation measure could be shortened by at least 10 months with the PC construction as opposed to the OC construction

**Total disturbed area** - Open channel and softball field construction requires construction activities in the area bound by the walking trail on the west to the back of sidewalk along Eliot Street on the southerly and easterly sides and to the back of sidewalk of Colorado Street on the north, approximately 6ac. Parallel culvert construction could be done within a 150' wide strip of land adjacent to the existing culvert alignment, approximately 3ac. With a total disturbed area approximately ½ of the OC construction machinery will spend less time working the disturbed area. Dust control, clearing operations, tree removal, and construction traffic, will be greatly reduced for a smaller area. Approximately 20 trees will not be removed with the PC construction an analysis of the carbon footprint comparison would be a interesting exercise for a project ½ area and ¼ the duration.

It is counter intuitive to suggest a total disturbed area of 6 ac for up to 16 months would have less impact than 3ac for 4 months. The reduction in trees being removed alone is sufficient to determine the PC is a significantly less disruptive project than the OC.

**Water Quality During Construction** – Section 3.5.1 indicates the “existing culvert will be demolished as part of the open channel construction” and that “The culvert will be opened once every two weeks during construction” “for 2 to 3 days”. During this time the construction “may lead to stagnation and water quality problems”. The mitigation measure for this is to install “two subsurface aeration systems”. The construction of the OC will have a detrimental impact on water quality of the lagoon during construction, a clear contradiction to two Project Objective stated in Section 3.4 of the EIR one to “Improve water quality by increasing the Lagoon’s circulation” and the other to “Enhance public enjoyment of the Lagoon”. The Lagoon will be closed to swimming during most of the construction duration. It also discusses that if construction is performed during the wet months the construction would need to be delayed to allow storm flows through the channel thus further delaying completion of the OC. These may be unavoidable impacts in construction of the OC but they are non-existent impacts with the PC.

PC construction can be completed with no impact to existing circulation (or improved circulation of the cleaned culvert). PC construction does not require the demolition of the

existing lifeline that is the existing culvert, for the lagoon. Inlet structures can be built behind coffer dams at each end of the culvert and sealed to prevent water from moving beyond the headwalls until the connection is completed. During construction of the PC the existing culvert (cleaned or not) can maintain the lifeline the lagoon has today, no decrease in water quality for this alternative. No Project Objectives are compromised by this alternative.

The PC construction has a net no impact on water quality and the OC construction has a net negative impact on water quality.

Many of the mitigation measures discuss a grading permit being required for the OC, a grading permit is not necessarily required for the PC. For this discussion it will be assumed a grading permit will be obtained for the PC.

The following comments are to the issues documented in Table 7.A of the EIR. This table is attached for reference and comparison.

AES -1: Parallel culvert (PC) construction has a smaller total disturbed area and removes 20% fewer trees. The screening requirements would only apply to a smaller area and for a shorter duration. The PC impact is substantially less than the OC.

AES-2 Relocation of restrooms not required for PC. Mitigation measure not required for OC.

AQ-1 See **Short-Term Construction-Related Noise Impacts** above. The PC requires approximately 1/5<sup>th</sup> the soil removal as the OC. At 1/5<sup>th</sup> of the export required for the OC the PC impact is substantially less than the OC.

AQ-2 The PC would have the same requirements but for a significantly shorter time frame. The PC impact is substantially less than the OC.

AQ-3 Same as AQ-2.

AQ-4 Same as AQ-2.

AQ-5 Same as AQ-2.

AQ-6 Same as AQ-2.

AQ-7 Same as AQ-2. The majority of the PC construction is beyond the 250' limit.

AQ-8 Same as AQ-2. The PC would require a much smaller volume of "dredged" material than the OC.

- BIO-1 Same impact, reduced area of impact for PC may increase chance of not disturbing specimen.
- BIO-2 Fewer trees are removed for PC and minor modifications to phase I could avoid (minimize) removal of palms. PC impacts are significantly less than the OC.
- BIO-3 Same
- BIO-4 Same
- BIO-5 Same
- BIO-6 The PC construction can be completed within 135 and eelgrass mitigation could be completed as prescribed. OC construction will exceed 135 days may require additional eelgrass mitigation.
- BIO-7 Same
- BIO-8 The reduced time frame for PC construction minimizes the exposure of construction stoppage as a result of the presence of the listed marine animals.
- BIO-9 Same as BIO-8.
- BIO-10 Same as BIO-8.
- BIO-11 Same as BIO-8.
- BIO-12 The reduced construction time and disturbed area for the PC greatly reduces the possible impacts for this measure. The PC is at much less risk of being delayed.
- BIO-13 Slight modifications to the project can greatly reduce the number of trees being mitigated thus reducing the possibility of the new trees not meeting the prescribed guidelines. The PC avoids the removal of at least 20??? trees. The PC impact is significantly less than the OC.
- CULT-1 The majority of the area to be disturbed is artificial fill the likely hood of the discovery of archaeological materials is minimal. The PC has a much smaller disturbed area therefore the chances are reduced further.
- CULT-2 Same as CULT-1.
- CULT-3 Same as CULT-1.
- GEO-1 The PC will not required slope protection measures as required for the OC. Erosion will only be an issue for the banks of the open channel and around the

bridge piers and footings. The geological issues are significantly less for the PC than for the OC.

GEO-2 Same

HAZ-1 The PC has significantly less soil removal required therefore the chance for encounter is significantly reduced. The PC impact is significantly less than the OC.

HAZ-2 Same

HAZ-3 The PC has significantly less construction duration and soil removal therefore the exposure or encounter with toxic substances is minimized. The PC impact is significantly less than the OC.

HAZ-4 Same as HAZ-3.

WQ-1 The PC has reduced construction duration and total disturbed area than the OC. Construction of the OC will require more reporting requirements to the State Regional Board for the longer construction time (1 year+). The PC impact on water quality is significantly less than the OC.

WQ-2 Same as WQ-1.

WQ-3 Same.

WQ-4 Not required for PC construction. The existing culvert can remain open during the PC construction. Water quality of the lagoon will **not** be negatively impacted by PC construction.

WQ-5 The shorter duration of PC construction possible dewatering necessity is minimized. Note: The determination of “discharge to the storm drain system or surface waters” seems mute, since all storm drains drain directly to surface waters. A more practical mitigation measure would be to require all water from dewatering operations discharge to the closest surface water via a three cell (tank) separator system.

WQ-6 Same

WQ-7 The reduced amount of soil removal for the PC minimizes this impact.

WQ-8 Same as WQ-7.

WQ-9 Same as WQ-4. If water quality is unsafe for recreational use it will not likely be as a result of construction related activities of the PC.

NOI-1 The PC can be constructed without the use of pile driving activities. Pile driving activities can be completely eliminated with minor changes to phase I

components. Pile driving activities are listed as the “noisiest activity on site” in Section 4.9.5 **Short-Term Construction-Related Noise Impacts**. The reduced time of construction and reduced disturbed area and minimal noise generation makes the PC an overwhelmingly superior alternative to the OC. The PC has significantly less impact than the OC.

NOI-2            The reduced time of construction and reduced disturbed area and minimal noise generation makes the PC an overwhelmingly superior alternative to the OC. The PC has significantly less impact than the OC.

NOI-3            Same as NOI-2.

NOI-4            Same as NOI-2.

NOI-5            Same as NOI-1.

NOI-6            Same as NOI-2.

PSU-1            Not required. The PC will maintain the existing surface features save the two new inlet/outlet structures of the PC.

PSU-2            Same. Note: Using reclaimed water on a water quality improvement project seems counterproductive.

PSU-3            The PC can be constructed with precast concrete sections with minimal formwork required at the inlet/outlet structures. Precasting will be done offsite thus minimizing any sacrificial material use. The PC has significantly less impact than the OC.

REC-1            The reduced time of construction and reduced disturbed area and minimal water quality impacts will minimize Lagoon closures compared to the OC. The PC significantly reduces the impact as compared to the OC.

REC-2            The reduced time of construction and reduced disturbed area minimizes the impact to Marina Vista Park and thus all groups, leagues and local residents. Note: “other nearby available City parks” are not nearby and not available during the peak use time. The next closest City park with similar amenities is more than two miles away (Whaley Park). The EIR only analyzed the “permitted use” of the park not the actual use of the park. Some of the activities may be temporarily relocated during construction while many will be permanently gone after the park is divided by the OC. The PC has significantly less impact on Marina Vista Park than the OC.

TR-1            The PC can be constructed across Colorado Street and Eliot Street in a matter of weeks as opposed to six months each for bridge construction at each street. The reduced duration of construction and reduced soil removal minimizes any traffic disruption as a result of construction. The PC significantly reduces the impact as compared to the OC.

The above analysis clearly shows that for every mitigation measure the impact, of the PC, is either equal to the impact, of the OC, or significantly reduced and in some cases nonexistent. The reduced impact of the PC is most dramatic in many of the most offensive impacts. Any impact related to noise, length of impact, water quality, air quality, traffic, and disruption to the community is reduced with the PC alternative.

## **Section 4.9.5**

### **Short-Term Construction-Related Vibration Impacts.**

Section 4.9.5 states “The closest pile driving activities to a sensitive receptor would occur at a distance of 112 ft from the residential uses located near the intersection of East Colorado Street and Orlena Avenue.” According to Figure 4.9.1 the nearest pile driving activities appear to be much less than the 112 ft as described in the EIR. It appears the distance would be approximately half that stated in the EIR. The use of “Equation 9 and Table 17 from the California Department of Transportation (Caltrans) *Transportation and Construction- Induced Vibration Guidance Manual* (Jones & Stokes, June 2004)” should be reapplied using a distance of 50 ft as opposed to the 112 ft discussed. Will the threshold of 0.1 in/sec (for architectural damage) be exceeded with the shorter distance? If so, the statement of “the proposed project would not result in any significant vibration impacts” would be erroneous.

This would not be an issue with culvert construction. Pile driving will not be required.

### **Short-Term Construction-Related Noise Impacts.**

Not removing the North parking area and restrooms would minimize this impact.

Per section 3.5.1 Phase II excavation for the open channel construction is “approximately 25,500 cy “\*. The typical truck for this type of excavation carries approximately 10 cy that is approximately 2550 truck trips. The volume of displaced soil for a parallel culvert is approximately 4200 cy (based on a 9’x14’ outside dimension box culvert) or approximately 420 truck trips to export the material required for the parallel culvert. The parallel culvert export, truck trips and thus noise impact is 20% less than that of the open channel.

\* based on a 100’ wide channel 14’ deep by 1000’ long it could be as high as 30,000 cy or 2580 more truck trips than the culvert construction.

The open channel requires the relocation of the existing softball field and will require grading operations from the open channel north to Eliot Street. The parallel culvert construction zone could be done within a 150’ zone of the existing culvert. Total disturbed area would be 1/3 to 1/2 that required for the open channel and softball field

reconstruction. The remaining area of the park, during culvert construction, would be available for community use.

Demolition of existing restrooms will not be required with PC.

Bridges will not be required with PC.

If the viewing platform is eliminated or redesigned to be floating, pile driving equipment will be minimized if not completely eliminated from the project. "Pile driving will be the noisiest activity on site" minimizing this activity will have achieved the greatest reduction in construction impact.

### **On-site Preschool**

The dredging operations are unavoidable in the restoration effort because removal of the toxic silt is imperative to the restoration effort. However Colorado Street bridge construction will occur within 315' of the preschool and will have duration of approximately six months, according to Section 3.5.1. Section 4.9.5 states "The preschool shall be closed whenever construction or pile driving would occur within 315 and 706 feet, respectively". Given those two statements from the EIR the preschool/model boat shop **will be closed** the entire six month duration plus whatever duration is required for the dredging.

The entire parallel culvert construction could be completed in less than two months. The duration of construction within the 315' preschool/model boat shop zone is dramatically reduced with the parallel culvert. Pile driving will not be required for the parallel culvert construction.



**Table 3-15. Summary Comparison of Alternatives to Project Objectives**

	Alt 1	Alt 2	Alt 3	Alt 4	Post-Phase 1
1. Improve water quality for recreational swimming within Colorado Lagoon by increasing tidal circulation, as measured by maximum tidal range and reduced pollutant residence time in Colorado Lagoon.	Exclnt	Exclnt	Exclnt	Exclnt	Good
2a. Improve and expand habitat by increasing tidal circulation in Colorado Lagoon, via modification of the tidal connection, for reduced algal blooms, improved benthic habitats (such as eelgrass and benthic invertebrates) and fish utilization.	Exclnt	Exclnt	Exclnt	Exclnt	Good
2b. Improve and expand habitat by increasing tidal range in Colorado Lagoon via modification of the tidal connection.	Exclnt	Exclnt	Exclnt	Exclnt	Good
2c. Improve and expand habitat by developing practical/feasible alternatives for creating new (restoring former) wetland habitat areas.	Fair	Good/ Fair	Very Good	Exclnt	Fair
3. Accommodate safe recreation at Marina Vista Park, while retaining existing functionality of active sports uses.	Exclnt	Good	Good	Good	Exclnt
4. Accommodate existing public and private infrastructure and services in the project area, including: flood protection and storm water drainage, (accounting for projected sea level rise over the next 50 years), utilities, traffic, and emergency services.	Exclnt/ Very Good	Fair	Good	Good	Exclnt
5. Minimize long-term maintenance requirements/costs.	Fair	Good	Fair	Good	Fair

All of the Phase 2 alternatives meet the project objectives to some extent and provide improvement over the Phase 1 project. Alternative 1 was fair in meeting the objectives of creating new habitat in a cost-effective manner and relative to minimizing long-term maintenance requirements. Alternative 2 was fair for objectives 2.c and 5, due to a higher construction cost and the amount of impact to public infrastructure. Alternative 3 was fair for objective 5 due to the maintenance requirements of the culverts in this alternative. Alternative 4 was good or excellent relative to all objectives.



My name is Matt Kirk and I am here to oppose the Project as recommended for approval. I've been to many of the meetings trying to understand why the City and other special interests are intent on dividing the community. Before you have piles of reports and such that staff tells you Alt. 4a is the best option, I have read those reports and looked at the data and have come to the conclusion that Alt1 is the best for all concerned. Sure there are those that disagree with me but the fact remains you need to physically divide this community to build Alt 4a. Park space will be taken away from children so a few people can say see what we did isn't it great. The report has an alternative that will allow full tidal range and maintain water quality while maintaining badly needed park space in the safest environment and it is not 4a.

My appeal to the Planning Commission approval is based on the fact that the Project as described in the EIR has changed beyond what a simple Addendum was meant to accomplish per CEQA 15162. The Project Objectives as stated in the Phase II Report, and made a part of the Addendum, don't match those stated in the approved EIR, and since the Phase II Report is part of the resolution recommended for approval that will materially change the Project. Adding three project objectives not previously mentioned in the EIR meets the threshold of substantial changes. Section 15162 states that if "Substantial changes are proposed in the project" the lead agency must prepare a Subsequent or supplement to the EIR.

The first new objective "Accommodating safe recreation at Marina Vista Park, while retaining existing functionality of active sports uses" will require extensive regrading, not discussed in the EIR, to a large portion of the park to accommodate the same level of sports activity the park currently handles. The EIR does not discuss the average daily usage or the peak usage of the park and how those displaced by this project will be affected and what are the mitigation measures. That is a substantial change to the project.

The Second new objective not stated in the EIR is "accommodate existing public and private infrastructure and services in the project area, including: flood protection (somewhat covered in EIR), storm water drainage, (accounting for projected sea level rise over the next 50 years), utilities, traffic, and emergency services. The EIR was silent on accommodating existing public and private infrastructure, that must be a substantial change because I'm not exactly sure what that means, can I get a little help from staff on that. Accounting for projected sea level rising is one I'm not sure even the City of Long Beach has the power to stop, but I am interested in how that became a project objective again the data and modeling that was not discussed in the EIR, again meets the "substantial change" threshold. Utilities would normally mean there is a will serve letter, the affected agency (utility provider) accepts the project and is willing to provide the services, the proposed sewage lift station comes to mind and does the City have input from the County Sanitation District and a commitment that they will build, maintain and pay for the electricity required to run the lift station. This Item is a key component to the open channel options and requires more analysis and detailed impacts of this facility. This was all but ignored in the EIR and this item alone meets the criteria "Significant effects previously examined will be substantially more severe than shown in the previous EIR"

The third new project objective "Minimize long-term maintenance requirements/costs." In all my years of engineering I have never seen a project that has mechanical systems that require scheduled maintenance, electrical costs (much of it during peak hours), required structural inspections, and a possibility of causing raw sewage spills and the fines related with such an event actually cost less to maintain than a concrete box with no moving parts that just quietly goes about its job whether someone is maintaining it or not.

These three new project objectives meet the threshold set out by section 15162 and the mere fact that there are new project objectives constitutes the need for a supplement to the EIR if not a subsequent EIR.

California Public Resources Code Section 21083 in describing criteria for when a project has a "significant effect on the environment" states: "if one or more of the following conditions exist." "The possible effects of a project are individually limited but cumulatively considerable. As used in this paragraph, "cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." Or "The environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly."

The projects that need to be considered are the Termino Avenue Storm Drain, The Seventh Ave Project will certainly impact traffic in the area, and the future project of moving of active space towards the east end of the park near Winward Pointe. All these projects have or will have a profound impact on our lives and need careful consideration. These projects as a group have significant adverse impacts on air quality and open space.

The Council needs to ask themselves what alternative best meets all those old and new objectives the answer is neatly laid out on page 78 of the Phase II Study Report, in case you don't have that with you I brought extras. This table clearly shows Alt 1 (parallel culvert) as the best choice. Now usually the best choice usually means the most expensive, but if we go to page 80 of the report construction costs are listed and Alt. 1 is the next to last in cost \$6.8M (Alt. 3 is \$5.8) and Alt 4a which does not over achieve on as many of the project objectives costs \$ 9.4m. The report discusses maintenance costs, I disagree with the maint. cost used as I stated earlier, but I am willing to use the reports numbers to illustrate total cost. Alt. 1 costs \$6.8m + \$2m (present value to maintain in perpetuity) = \$8.8m, Alt. 4a costs \$9.4m + \$1.3m (present value to maintain in perpetuity)= \$10.7m, even though I graduated from CSULB as did many of my esteemed opponents, in pretty sure \$8.8m is a lot less than \$ 10.7m. I would hope Council does not think funding for culverts is not available, Anaheim Bay and Bolsa Chica Wetlands are two recently successful projects using culverts and I would ask them to keep that in mind when soliciting funding for what ever project is selected.

I could go on for days why an open channel is a bad idea, obviously I would like the Council to select the parallel culvert as the preferred alternative if for no other reason than the minimal impact to the community in the short and long term.

The Council needs to ask themselves what alternative produces the least impact provides the safest environment while achieving the project objectives. A parallel culvert would have little to no opposition except from those who want something that they don't already have.

In September, City staff published the Addendum to the EIR and interested parties had less than one week to review and analyze prior to the Planning Commission Meeting and decision. Last night at about 5:00pm I received a 55 page "White Paper" from City Staff, the cover email message said "The White Paper presents information in response to issues raised in the two appeals" I did not have time to refute or confirm if that is the case. Therefore I would request the Council allow Ms. Aley, myself and other Appellants time to adequately review and respond to this "White Paper". This additional time can be used to find common ground or wetlands that can be used for mitigation in an area acceptable to all concerned.