

Selected Plan for the Lafayette-Louisville Boundary Area Outfall Systems Plan Conceptual Design Report

November 4, 2010

The *Selected Plan* for the Lafayette-Louisville Boundary area agreed upon by the City of Lafayette (*Lafayette*), the City of Louisville (*Louisville*) and the Urban Drainage and Flood Control District (*District*) (hereinafter *Lafayette, Louisville and District* shall jointly be referred to as “*Sponsors*”) to be shown by McLaughlin Water Engineers, Ltd. (*McLaughlin*) in the final *Lafayette-Louisville Boundary Outfall Systems Plan Conceptual Design Report* (hereinafter called “*Final Report*”) is described in general and specific terms below.

SELECTED PLAN AND DIRECTLY RELATED ISSUES

Unless specifically directed otherwise below, this *Selected Plan* to be shown in the *Final Report* essentially follows the recommendations made by *McLaughlin* in the *Lafayette-Louisville Boundary Outfall Systems Plan Phase A – Alternatives Analysis Report*, dated April 2010 (hereinafter called “*Phase A Report*”) based on the following principal elements, goals and objectives:

- Minimize stormwater and flood-related damages to drainageways, public infrastructure and private property. Do this with value engineering and practicalities of implementation in mind.
- Institute an approach that balances the development in the watershed with stormwater management implementation that complements drainageway and stream stability solutions, that as a system, provide multiple benefits that include:
 - Water quality protection and enhancement;
 - Water quantity resources protection;
 - Preservation of natural character of the waterways and their terrestrial and aquatic habitat resource;
 - Wherever possible, provide public use and access and/or trails within the corridors of identified waterways in order to provide maintenance access that will also provide for active and passive recreation of the public.
- Consider the needs for new and upgraded roadway crossings when such improvements are practicable, affordable and add significant value in relation to the cost.

McLaughlin is asked to address all items that are to be addressed in the *Final Report* as described in the agreement between *District* and *McLaughlin* for this project, as well as develop, describe and show a conceptual design based on the Recommended Plan in the *Phase A Report*, with the following exceptions:

1. Remove the proposed Coal Creek Station Pond from Drainageway 7-1, using the peak flows at the Highway 42 crossing as shown in Alternative 1A.
2. After Drainageway 7-1 crosses Highway 42, daylight flows into an open channel to the extent possible without negatively impacting the existing community garden and market farm areas. At

the western edge of this area, design a conduit to convey flows to the east where flows will once again daylight into an open channel.

3. Design an open channel for Drainageway 7-1 east of the existing community garden and market farm areas to convey a 10-year storm until it combines with Drainageway 7-2.
4. Determine the horizontal alignment of Drainageway 7-1 so that disruption to the existing irrigation system is minimized (i.e. do not deviate from the current flow path). Also, do not include a hardened surface road for maintenance access along Drainageway 7-1 within the Open Space.
5. Revise the size of the North End Detention Pond to reflect the size of the future detention pond to be constructed by the North End Development. Include in the conceptual plan direction for the City of Louisville to obtain easements for the Anderson South Pond, the Louisville Plaza Pond, the Schempp Commercial Pond and the Schempp South Pond so the City will have the ability to maintain the ponds and ensure they are functioning as intended.
6. Design Drainageway A in such a way as to preserve as much mature vegetation as possible, primarily by shifting the horizontal alignment of the channel to protect trees.
7. Include on all drawings the location of all preserved historic landmarked areas.
8. Design the open channel for Drainageway A-2 east of the proposed soccer complex area and Drainageway A to convey a 10-year storm until Drainageway A combines with Drainageway 7.

Also show and describe all recommended facilities, costs and actions on a reach-by-reach basis of the drainageway. In general, the *Final Report* shall provide, show, and recommend the following:

1. Under a section in the *Final Report* titled “General Recommendations”, recommend:
 - a) That the controlling jurisdictions take steps to stabilize all major waterways when their watershed urbanizes, rehabilitate existing degraded reaches of the waterways and their tributaries, and aggressively control erosion and sediment transport during construction activities.
 - b) That Sponsors and any other jurisdiction having land use control powers in this watershed require new land development and significant redevelopment and publicly funded projects to provide to the maximum extent practicable runoff volume control practices (i.e., minimize directly connected impervious areas and employ infiltrating BMPs) whenever site conditions permit.
 - c) That the controlling jurisdictions take steps to require that all BMPs for all new development, redevelopment, and publicly funded projects provide to the maximum extent practicable a Water Quality Capture Volume (*WQCV*) as recommended in the Urban Storm Drainage Criteria Manual – Volume 3, after accounting for volume reductions achieved using volume control practices as recommended under Item 1.b above.
 - d) That all jurisdiction having land use control powers in this watershed continue to implement their floodplain management regulations, including regulation of the 100-year floodway and floodplain.

Recommend that these jurisdictions adopt a policy, if not already done so, of preserving the defined floodplains as open spaces to the maximum extent possible and that at least 1-foot freeboard be provided for the lowest floor above the 100-year flood elevation shown on the

latest flood hazard area delineation or FIRM maps for all human occupied structures built adjacent to, or within, the defined 100-year floodplains.

- e) That all jurisdiction having land use control powers in this watershed continue to participate in FEMA's flood insurance Community Rating System and public education programs.
2. List on each plan view and profile sheet of the conceptual design, where appropriate, the recommended wetland mitigations that will be needed to implement recommended improvements, if any.
3. Show on appropriate plan and profile sheets (and as deemed necessary) facilities to arrest the vertical degradation of the low-flow channel of natural and man-made waterways and to help rehabilitate, as much as possible their stable function and habitat.
4. Recommend rehabilitating eroded and degraded banks where needed and desired to arrest the horizontal erosion along natural waterways using bio-engineered methods that combine buried soil riprap and revegetation with native species of riparian and dryland vegetation.
5. Show on plan view and profile sheets the needed buttressing of critical utilities and other structures that may be endangered by stream erosion.
6. Using the input from stakeholders and the public, work with *Sponsors* and affected other local jurisdictions to prioritize the recommended facilities and actions that are listed in the *Final Report* and clearly articulate them in that document.
7. Describe the recommended type and schedule of maintenance activities for all improved facilities recommended in the *Final Report*.
8. Consider the various functions of all natural waterways in the study watersheds and their floodplain, including flood conveyance, riparian habitat, open space, aesthetics, recreation, urban development, water quality, utility crossing, transportation and other features.
9. Acknowledge in the *Final Report*, that land-use changes to the contributing watersheds affect the flood hazard nature (i.e., runoff rates, volumes and depths), the transport of sediment, and the water quality of the receiving natural waterways. The *Final Report*, under "General Recommendations" shall suggest that *Sponsors* and any other jurisdiction having land use control powers in these watersheds monitor land-use changes and whenever the land-use changes result in imperviousness ratios that exceed the projections identified in the *Final Report*, these jurisdiction take steps to further limit increases in stormwater runoff through the use of additional on-site detention, infiltrating BMPs and *WQCV* BMPs, thereby reducing the runoff rates, volumes and future damage potentials to the *Final Report* levels.

EXECUTIVE SUMMARY

Include an Executive Summary in the *Final Report* written in plain, non-technical language, which is directed primarily at the general public and elected officials. This summary should, at the minimum, contain the following as well as other items listed in *District's* checklist for preparation of the final outfall systems conceptual design report:

1. A brief summary of the planning process including numbers of progress and public meetings.
2. A brief description of the decisions made by project sponsors during this project.

3. A brief summary of all design criteria specifically developed for this plan.
4. A brief summary of the following sections of the *Final Report*: Purpose and Scope, Study Area Description, Alternative Evaluation, Recommended Plan, and Conceptual Design.
5. A map showing the area and all recommended improvements.
6. Tabular and narrative summaries of costs showing costs for capital improvements, engineering/administrative/contingencies, and land values, all sorted by drainageway reach, tributary, and outfall system, and by jurisdiction. The reach length (miles), tributary catchment area (square miles), and their totals should also be included in the table.

Incorporate the following notes on each drawing:

“This drawing is for master planning purposes and represents preliminary and conceptual engineering. Alternatives to this outfall system will be considered by local agencies and the Urban Drainage and Flood Control District provided the alternative offers an equivalent intent of the plan, including hydraulic capacity, water quality, stream stability and natural waterway features. The alternative must comply with all requirements of the local jurisdiction and the Urban Drainage and Flood Control District. In addition, there may be State and Federal requirements that will need to be considered and met. This drawing does not provide a final design and shall not be used for construction purposes.”

“Local Cities, Towns, and Counties manage and regulate all land use change, development and redevelopment activities within and adjacent to the 100-year floodplains in order to prevent, to a maximum extent possible, future flood damages to buildings and structures from the 100-year flood and to minimize damages from larger floods. The recommendations of this plan provide a set of options subscribed to by Cities, Towns and Counties in carrying out their floodplain management and regulatory responsibilities and obligations.”

“Many activities that occur in or affect ditches, drainages, creeks, ponds or wetlands require a Section 404 Permit Authorization from the US Army Corps of Engineers. During preliminary design, and prior to final design or starting work, contact the Corps' Denver Regulatory Office at 303-979-4120 for appropriate permit authority to avoid compromising and delaying the completion of the project.”

ADDITIONAL DIRECTION

1. Unit costs should be updated to reflect the most current costs available.
2. Include an Acknowledgements section listing all participants and stakeholders in this study. Include in the list their name, organization and function in the planning process (e.g., City of Golden staff: provided review and input. Or, John Doe: attended two progress meetings and provided the following input: ____).
3. Show all maintenance access routes along all reaches. To the extent feasible, the alignment of these routes shall be coordinated with existing and planned recreational trails identified using

input provided by Sponsors, special districts and other local stakeholders.

4. Summarize cost estimates of improvements by jurisdiction where those improvements are located, by the reach in which the improvements are located and overall project totals.
5. Report estimated costs for maintenance of all facilities, including detention ponds, storm sewer outfall points, grade control structures, etc. reported in the *Planning Report*.