Proposed Infrastructure Project & Program Concepts

April 3, 2018
Flooding reports from survey responses to “how much does your property flood?”

Red – most frequent, severe

Yellow – moderate severity, frequency

Green – least severe, frequent

Grey – no flooding
• Non-structural
  • Floodplain insurance
  • Technical assistance & education
  • Creek corridor management
  • Ecological evaluation

• Structural
  • Conveyance
  • Detention/Storage
  • Sediment removal
  • Natural Resource Enhancement
  • Other
• Collected, developed projects and project information from past reports, TAC knowledge of basin and sites
• Grouped by project type
• Assessed by TAC/ subcommittee members on basis of criteria from statement of understanding
• Rankings reviewed by TAC
• Projects grouped into 4 bins
• Limited data on project scope, cost, benefits to support assessment
NON-STRUCTURAL PROGRAM CONCEPTS

- May be focused or basin-wide
- Property owners are implementation partners, beneficiaries
- Generally lower cost than structural projects
- Effectiveness a function of community participation rate
- Can leverage existing programs in the region
- Will need funding, staff resources to implement
Recommended New Non-Structural Programs

Community Rating System Enrollment
National Flood Insurance Program (NFIP)

• Benefits:
  • Reductions in flood insurance premiums in and out of the regulatory floodplain
  • Improved property-owner understanding of flood risk
  • Many elements already in place or relatively easy to add
  • Proposed CMNJ projects may get additional credit
  • Can implement on pilot basis within CM/NJ

• Partners
  • Washington County
  • Beaverton
Crediting Under the NFIP Community Rating System

• Public Information
  • Elevation certificates
  ✓ Map information service
  • Outreach projects
  • Hazard disclosure
  • Flood protection information, assistance
  • Flood insurance promotion

• Mapping and Regulation
  • Updated floodplain mapping
  ✓ Open space preservation
  ✓ Higher regulatory standards
  • Flood data maintenance (tax lot)
  • Stormwater management, including volume control
  ✓ This category may be eligible for extra credit due to growth

• Flood Damage Reduction
  • Flood hazard mitigation plan
    • Acquisition and relocation
    • Flood protection
    • Drainage system maintenance

• Flood preparedness
  • Flood warning and response
  • [Dam, levee safety]

➢ High point categories
## Recommended New Non-Structural Programs

### Technical Assistance & Education Programs

<table>
<thead>
<tr>
<th>Program</th>
<th>Benefits</th>
<th>Likely Partners</th>
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</table>
| Technical assistance with flood proofing, flood elevation certificates, flood insurance consultation for those in or near regulatory floodplain or flood hazard area | • Reductions in flood insurance premiums  
• Improved property-owner understanding and management of flood risk | • NGOs (e.g., Rain Ready, Enhabit, Willamette Partnership, Wetlands Conservancy, Tualatin Riverkeepers, DePave, Backyard Habitat) |
| Technical assistance for all watershed residents                        | • Drainage improvements  
• Greater watershed stewardship  
• Localized habitat benefits                                           | • SWCDs  
• Washington County, Beaverton                                                                 |
| Community Education Program, e.g., Floodplain 101, Community Science    | • Improve understanding of flood risk  
• Greater watershed stewardship  
• Informed adaptive management of creek corridors                       | • CWS  
• THPRD                                                                 |

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**Backyard Habitat Certification Program**

Plant Roots, Create a Habitat, Transform the World... One Yard at a Time

CEDAR MILL/ NORTH JOHNSON CREEKS

**Willamette Partnership**

**Oregon Solutions**
# Recommended New Non-Structural Programs

## Creek Corridor Management

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<tr>
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<th>Benefits</th>
<th>Likely Partners</th>
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</table>
| Acquisition of property, easements adjacent to creeks (with emphasis on CM/NJ creek corridors from Sunset Hwy. to Walker Rd.) | • Facilitate structural projects in creek corridors (preserve options)  
• Further reduce risk of new floodplain development                      | THPRD, Beaverton, Washington County, CWS, NGOs (e.g., TWC)               |
| Greater controls via ordinance re. new development or redevelopment, e.g., lateral or vertical buffers on regulatory floodplain | • Account for hydrologic, hydraulic and climate uncertainty  
• More realistic communication around, management of flood risk           | Washington County, Beaverton                                           |
- Multiple, dispersed
- Limited available sites
- Modify ecosystem to implement
- Localized benefits, impacts
- Add to existing capital project plans
- Typically agency-led, funded (may be in-kind contributions from landowners)
- Will require permitting
Conveyance Projects

- Promotes local drainage
- Retrofit in existing neighborhoods
- Risk of moving flooding problems downstream
Detention/Storage Projects

- Often in creek corridors (in-line)
- Retrofit in existing neighborhoods
- Real-time control may be option
- May be able to improve local habitat as part of project
- Hard to maintain fish passage with in-line projects
Sediment Removal Projects

- Store sediment released by natural and accelerated erosion from headwaters zone
- Interrupts natural process of landscape evolution
- Not sustainable but may be temporarily useful for water, sediment storage
- Periodic site disturbance with ecological risk of measurable sediment release
- Challenging to permit
- Can be costly relative to benefit
Natural Resources Enhancement Projects

- Land intensive relative to potential storage volume, flood reduction
- Focus on ecosystem health, long-term resilience
- Design adjustments to obtain permits?
- Intermediate cost
INFRASTRUCTURE PROJECT CONCEPTS BY ZONES
HEADWATERS

- Technical assistance – upland drainage
- Education/ outreach
- Stream corridor enhancement to reduce erosion
- Detention/storage upstream of culverts, road embankments
Category and Recommendation

- Pending
- Conveyance, Not Recommended
- Conveyance, Needs Further Consideration
- Conveyance, Recommended
- Natural Resource, Needs Further Consideration
- Other, Not Recommended
- Sediment Removal, Recommended
- Detention/Storage, Not Recommended
- Detention/Storage, Needs Further Consideration
- Detention/Storage, Recommended

HEADWATERS
UPPER ZONE

• Technical assistance – upland drainage
• Education/ outreach
• Stream corridor easements, ordinances
• Stream corridor enhancement to reduce erosion
• Detention/storage upstream of culverts, road embankments [smaller]
Category and Recommendation

- Pending
- Conveyance, Not Recommended
- Conveyance, Needs Further Consideration
- Conveyance, Recommended
- Natural Resource, Needs Further Consideration
- Other, Not Recommended
- Sediment Removal, Recommended
- Detention/Storage, Not Recommended
- Detention/Storage, Needs Further Consideration
- Detention/Storage, Recommended

UPPER ZONE
MIDDLE ZONE

• Technical assistance – upland drainage
• Education/ outreach
• Corridor management
• Detention/storage upstream of culverts, road embankments [larger]
LOWER ZONE

- Technical assistance – upland drainage
- Technical assistance – flood risk reduction
- Education/ outreach
- Corridor management
- Conveyance
- Detention/storage
- Sediment removal
- Natural resource enhancement
LOWER ZONE

Category and Recommendation
- Pending
- Conveyance, Not Recommended
- Conveyance, Needs Further Consideration
- Conveyance, Recommended
- Natural Resource, Needs Further Consideration
- Other, Not Recommended
- Sediment Removal, Recommended
- Detention/Storage, Not Recommended
- Detention/Storage, Needs Further Consideration
- Detention/Storage, Recommended

CEDAR MILL/
NORTH JOHNSON CREEKS
NEXT STEPS FOR TAC, SUBCOMMITTEES

• Refine project details
  • Concentrate on recommended projects
• Implementation structure
• Hydraulic effectiveness
• Permitting considerations
• Cost estimates
• Sequencing considerations

• Focus on financial instruments, approaches

• Begin consideration of commitments for Declaration of Cooperation
Community Engagement: Outreach Activities

• Online open house and community survey
  ▪ Survey closes May 10

• Self-guided tour of watershed
  ▪ To be scheduled late April/early May

• Table at native plant sale with Tualatin Hills Parks and Recreation District
  ▪ April 28 at the Tualatin Hills Nature Center

• CPO, HOA notification and invitation to participate in online open house via newsletters or presentations
Community engagement: Community survey

- Gauging level of interest in:
  - Community education/science programs
  - Flood insurance programs
  - Development regulations
  - Natural resource enhancement
  - Mitigation projects on private properties
  - Funding methods
  - Other ideas