

Tittabawassee River, Saginaw River & Bay Site

Proposed Cleanup Plan for Tittabawassee River Floodplain Soil

Mary P. Logan – U.S. EPA
CAG Meeting, September 15, 2014



Outline

- EPA's cleanup proposal for Tittabawassee River floodplain
- Implementation approach
- Alternatives
- EPA's rationale
- How to comment and next steps

Tittabawassee River 8-Year Floodplain

- Frequently flooded area along the lower 21 miles
- About 4,500 acres in the 8-year floodplain
 - Distribution is not uniform
- Dioxins, primarily furans are the contaminants of concern
 - Distribution is not uniform
- Not all areas will need cleanup



EPA's Proposal

- Maintained Residential Areas – If dioxin levels are greater than 250 ppt, soil will be dug up and hauled away. Soil will be replaced and grasses and plants restored.
- Other Land Use Areas – If dioxin levels are greater than 2,000 ppt, soil will either be dug up and hauled away or covered with clean materials. EPA will work with each property owner on the right approach.



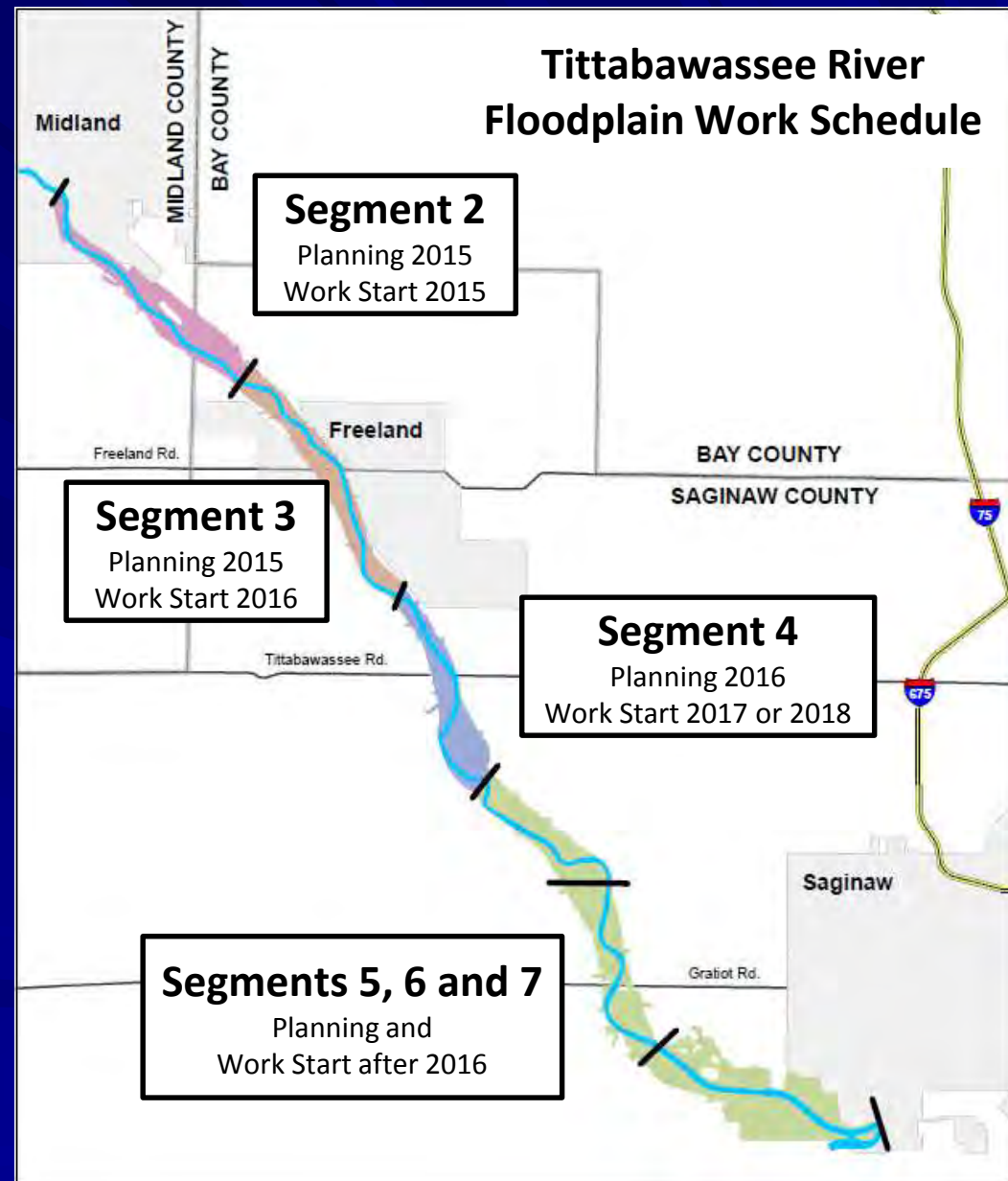
EPA's Cleanup Plan is Protective

- EPA's cleanup plan will protect everyone who lives, works or plays in the floodplain
- EPA's proposed cleanup will ensure that people are safe when they come in contact with Tittabawassee River floodplain soil
 - Families can use their yards without worry
 - Recreational visitors can safely use the floodplain
 - Workers who contact floodplain soil will be protected

IMPLEMENTATION APPROACH

Implementation Approach

- Floodplain work will be up-to-downstream, segment-by-segment
- Work to start adjacent to Segment 2
- Each floodplain segment cleanup expected to take 1 – 2 years
 - In-channel and bank work done concurrently

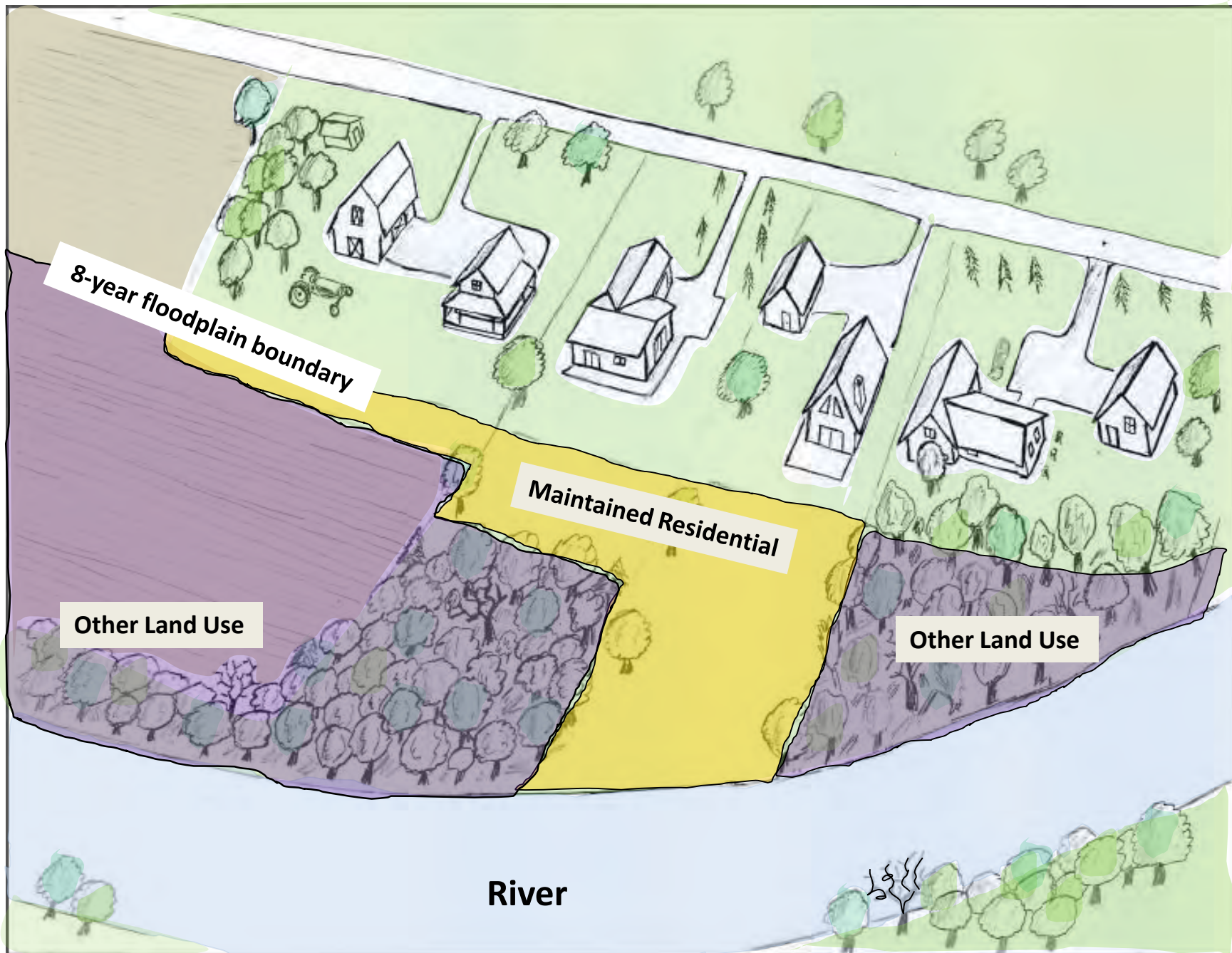


Scope of Work

- ~ 4,500 acres along 21 miles
- > 700 property parcels to be evaluated
 - Large parcels may be sub-divided for the assessment
 - > 500 parcels with dwellings
- > 600 owners to work with

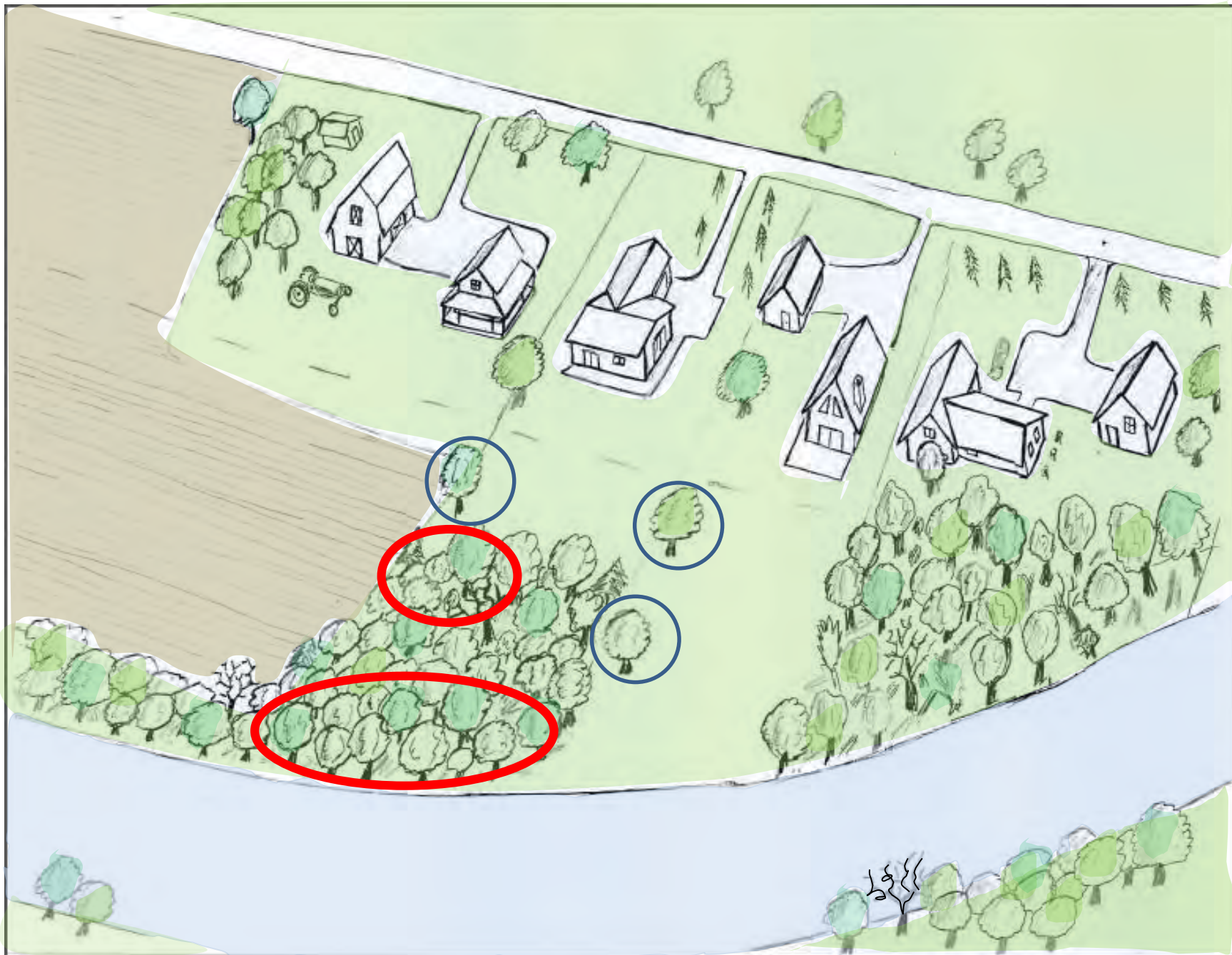
Implementation Approach (cont.)

- Property-by-property evaluations will be done to determine if cleanup is needed
 - Focus on the 8-year floodplain
 - Dioxin levels compared to cleanup number(s)
 - Only a portion of the property may need work
- If cleanup is needed, owners will have input on their plans and schedules



Implementation Approach (cont.)

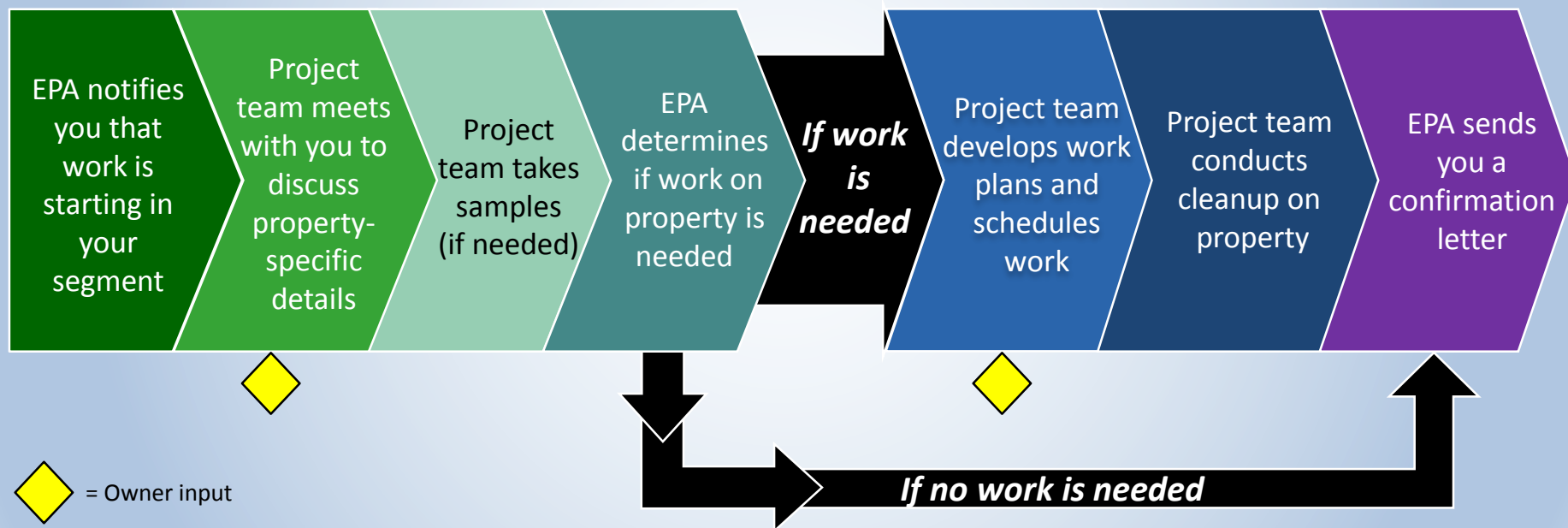
- Generally, construction on each property should be completed within a week or two
- People can stay in their house during the work
 - No services are expected to be disrupted
 - Some parts of the yard likely to be restricted during construction
- Most plants and trees will need to be removed
 - Properties will be replanted after construction is complete
 - The project team will work with homeowners to see if specific trees could left in place



Implementation Approach (cont.)

- There will be no expense to the property owner
- Cleanups are voluntary
 - However, EPA will try hard to persuade owners to accept the cleanup
 - The project team will work with owners to try to resolve concerns
- Once the cleanup is done (or if no cleanup is needed), the owner will receive a confirmation letter from EPA

What to expect when cleanup starts in your river segment



ALTERNATIVES

Floodplain Cleanup Options

In areas that need cleanup:

■ Soil Removal & Disposal

- Dig up contaminated soil
- Backfill with clean soil, if needed
- Transport & dispose contaminated soil

■ Soil Cover

- Place a cover of clean material over contaminated soil
- Monitoring required, and maintenance if needed

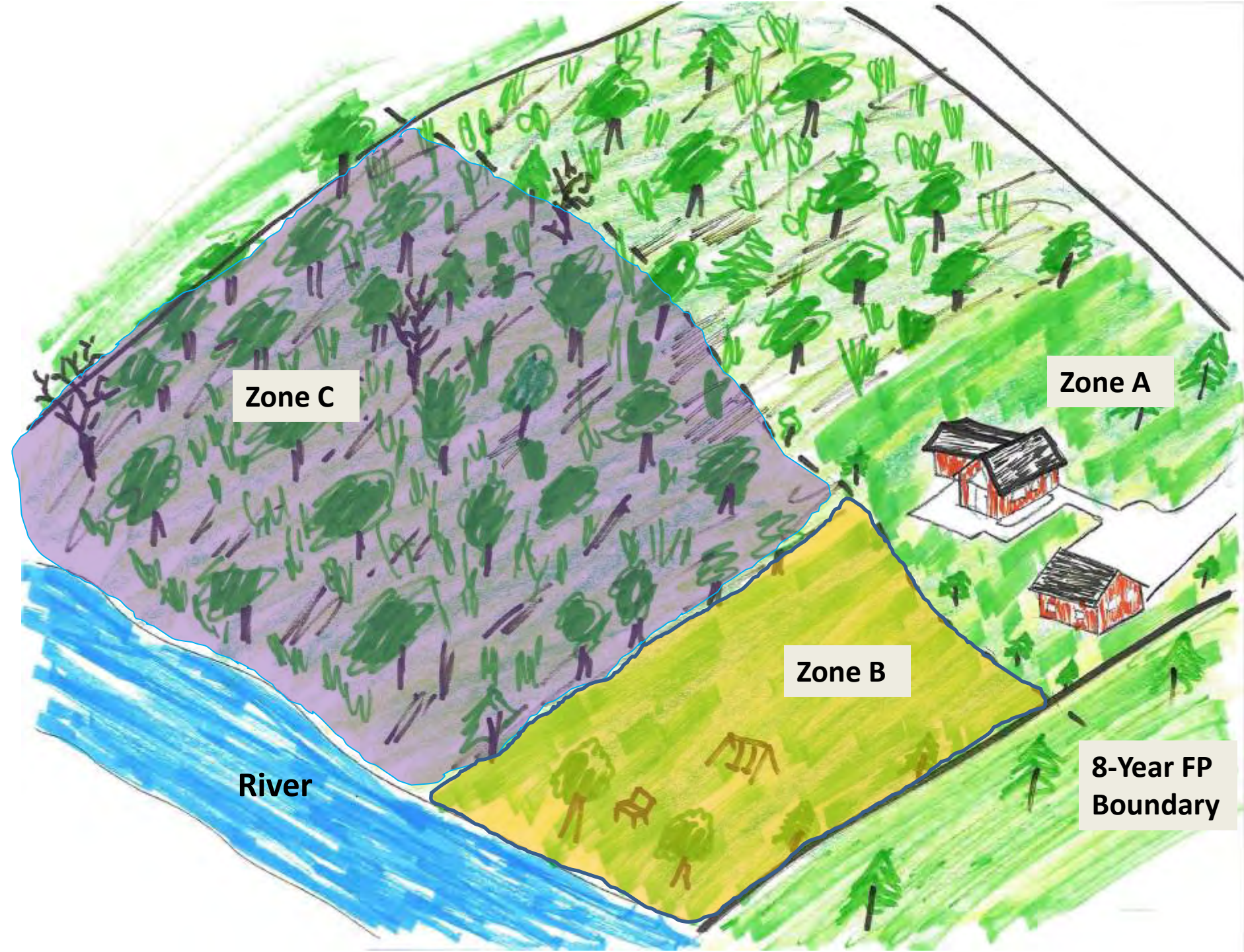
■ Combination of these two

Site-Specific Cleanup Numbers

- Cleanup numbers for two land uses:
 - Maintained residential areas → 250 ppt
 - Other land use areas → 2,000 ppt
- EPA's criteria are designed so that people will be safe when they come in contact with floodplain soil
- The cleanup numbers are designed to protect all age groups for a wide range of floodplain activities

Site-Specific Cleanup Numbers (cont.)

- “Site-specific” means that there are exposure factors that are unique to Tittabawassee floodplain soils
- EPA and MDEQ considered factors such as:
 - Local climate
 - Where people spend time and how they use the floodplain
 - The amount of exposure people get from house dust vs. soil
 - Studies on the amount of dioxin that is taken up into the body (or “bioavailability”)



Zone C

Zone A

Zone B

River

8-Year FP
Boundary

Floodplain Alternatives

	Alternative 1	Alternative 2	Alternative 3 EPA's Recommended Alternative
Maintained Residential Areas	Remove and dispose of soil in areas with dioxin levels >250 ppt	Remove and dispose of soil in areas with dioxin levels >250 ppt	Remove and dispose of soil in areas with dioxin levels >250 ppt
Other Land Use Areas	Remove and dispose of soil in areas with dioxin levels >2,000 ppt	Cover areas with dioxin levels >2,000 ppt	Either remove and dispose of soil OR cover areas with dioxin levels >2,000 ppt, working with property owners

Common Elements

- Property-by-property evaluations to identify specific floodplain areas requiring cleanup
- Temporary access roads and temporary staging areas for equipment and materials
- Excavated soil may be taken to a local landfill or an approved area at Dow's Midland plant
- Institutional Control Implementation and Assurance Plan (ICIAP)
- Planning and monitoring

Future Floodplain Land Use

Maintained Residential Properties

- Can change to any future use w/out evaluation

Other Land Use Properties

- Can change to any future use except maintained residential w/out evaluation
- If converted to maintained residential, will require additional assessment and possibly cleanup

Ensuring Protectiveness

- EPA is **REQUIRED** to ensure ongoing protectiveness of remedies
- Monitoring of future floodplain land use
- Five-Year Review process
- ICIAP is only one tool to help ensure long-term protectiveness

ICIAP

An ICIAP is a plan to systematically:

- Establish and document the activities associated with implementing and ensuring the long-term stewardship of ICs
- Specify the persons and/or entities that will be responsible for conducting these activities

Institutional Controls

- ICs are administrative and legal tools that
 - Help minimize the potential for exposure, and/or
 - Protect the integrity of a remedy
- ICs typically supplement engineering controls
- ICs are often used in “layers”
- ICs are used on a large proportion of Superfund sites

Types of ICs

- **Government Controls** include regulations, laws or permits (e.g., county zoning, building permits)
- **Proprietary Controls** include property use restrictions based on private property law (e.g., easements and covenants)
- **Enforcement Tools** include documents that require entities to conduct or prohibit specific actions (e.g., settlement agreements, orders or permits)
- **Informational Devices** include deed notices or public advisories that alert and educate people

Types of ICs for Floodplain

- Government Controls
 - State and local laws/ regulations limiting floodplain construction, development or filling
 - Wetlands regulations
- Proprietary Controls may include voluntary agreements with owners on land use
- Enforcement Tools EPA's settlement agreement will require Dow to develop and implement ICAIP
- Informational Devices include game consumption advisories and other educational materials

EPA IC Guidance

- Institutional Controls: A Citizen's Guide ... (2005)
- Institutional Controls: A Site Manager's Guide ... (2000)
- Strategy to Ensure Institutional Control Implementation at Superfund Sites (2004)
- Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing ... (2012)
- These and others, found at <http://www.epa.gov/oerrpage/superfund/policy/ic/guide/index.htm>

EPA'S RATIONALE

EPA's Proposal

- Maintained Residential Areas – If dioxin levels are greater than 250 ppt, soil will be dug up and hauled away. Soil will be replaced and grasses and plants restored.
- Other Land Use Areas – If dioxin levels are greater than 2,000 ppt, soil will either be dug up and hauled away or covered with clean materials. EPA will work with each property owner on the right approach.

EPA's Evaluation Criteria

■ Effectiveness

- Overall protection
- Compliance with laws and regulations
- Long-term effectiveness and permanence
- Short-term effectiveness
- Reduction of toxicity, mobility, or volume through treatment

■ Implementability

- Technical and administrative feasibility
- Availability of services and materials
- State and community acceptance

■ Cost

Effectiveness

- All alternatives will be effective in the long term
 - Covers must be monitored and may need maintenance
- A clean cover may not be effective in all areas
 - Active farming would disrupt a cover
- All alternatives require most existing vegetation to be cleared away
 - Short- and long-term impacts on the ecosystem
 - Forests and mature wetlands may require decades to return to their pre-construction condition
 - Grassy areas will be easier to restore

Green Corridor

- ~ 76% of the floodplain is natural land types
- Includes ecologically important areas
- Provides unique and varied habitat
- Promotes wildlife diversity
- Helps dissipate energy from floods, stabilize soil erosion and protect property



Short-Term Effects

- All alternatives would have some short-term impacts: noise; lights; air emissions and dust; water and fuel use; etc.
- Truck traffic – truckloads per acre
 - Soil cover = ~ 60 – 120 truckloads
 - Soil removal and disposal = ~ 120 – 240 truckloads
- Community and worker safety – managed by health and safety and operational plans

Green Remediation

- Will try to incorporate green/ sustainable practices into floodplain cleanup
- Core elements
 - Material and waste
 - Energy
 - Air and atmosphere
 - Water
 - Land and ecosystem

Implementability

- Access/ agreement for remedy
- Seasonal restrictions
 - Endangered/ protected species
 - Local limitations on road traffic
- Physical constraints
 - Clean cover may be difficult on steep slopes
 - Cannot have major changes to flood patterns
- Community acceptance → TBD

Cost

- Cost per acre
 - Clean cover ~ \$17,000 to \$30,000
 - Remove/ dispose soil ~ \$33,000 to \$49,000
- EPA's preliminary cost estimate is \$10 million, and likely more
- Project costs will be refined as property-specific cleanup plans are developed

Recommended Alternative

EPA's proposal provides the best balance of effectiveness, implementability and cost

- EPA's plan ensures protectiveness but allows flexibility
 - EPA's plan provides input to owners
 - The plan minimizes disruption, but leaves properties safe to use
- EPA's proposal concentrates work in the most contaminated or highly used areas
- EPA's plan minimizes ecosystem impacts by selectively targeting work areas
- EPA's plan permanently removes contaminated soil from parts of the floodplain

HOW TO COMMENT AND NEXT STEPS

Comment Period

- Comment period for 60 days
 - August 15 through October 14
- Submit Comments
 - Orally – at the September 24 public meeting
 - Written
 - Email – link on Site web page
<http://www.epa.gov/region5/cleanup/dowchemical/pubcomment-201408.html>

Next Steps

- EPA and MDEQ will review and respond to public comments
 - The plan may change based on comments
- EPA will finalize the plan
- EPA expects Dow to begin Segment 2 floodplain designs and planning
 - Will work with property owners
 - Work expected to start in 2015

END