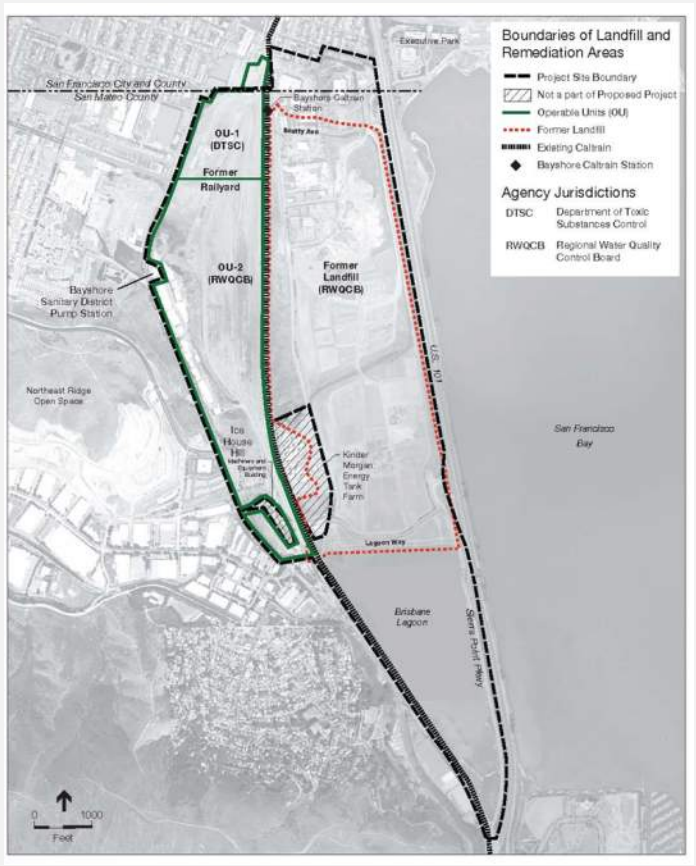
BRISBANE BAYLANDS

City Council Public Hearing #1

Hazards & Hazardous Materials

November 17, 2016

SITE REMEDIATION AND TITLE 27 LANDFILL CLOSURE



REGULATORY AUTHORITY

- Land Use
  - City of Brisbane
- Site Remediation
  - Department of Toxic Substances Control (OU-1)
  - Regional Water Control Board (OU-2)
- Title 27 Landfill Closure
  - Regional Water Control Board
  - San Mateo County Health System

RELATIONSHIP BETWEEN CITY AND REGULATORY AGENCY RESPONSIBILITIES

CITY OF BRISBANE

- Determine appropriate land use for Baylands
  - Types
  - Intensity
  - Distribution

REGULATORY AGENCIES

- Ensure that the site is safe for the uses determined by the City to be appropriate

TO ENSURE SAFETY FOR THE USES IDENTIFIED BY THE CITY, REGULATORY AGENCIES WILL:

- Review existing studies and require any needed additional studies to characterize the site
- Set risk-based cleanup goals through a human health risk assessment
- Review and approve remediation plans to achieve those goals
- Undertake project-level CEQA review for remediation
- Oversee physical site remediation
- Certify completion of remediation
- Undertake needed post-remediation activities

KEY TERMS

REMEDIATION AND TITLE 27 LANDFILL CLOSURE

Remediation:

- Actions to prevent, minimize, or mitigate damage that may result from the release or threatened release of a hazardous material. These actions include site cleanup, monitoring, testing, and analysis of site conditions, site operation and maintenance, and placing conditions or restrictions on the land use of a site upon completion of remedial actions.

Title 27 Landfill Closure:

- The requirements contained in California Code of Regulations Title 27 for closure and post-closure maintenance plans to ensure that landfill closure and post-closure maintenance and the eventual reuse of disposal sites will conform to state performance standards and substantive requirements.

DEFINITION OF HAZARDOUS MATERIALS AND WASTES

- **"Hazardous material:"** any material that poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. (*California Health and Safety Code*, Section 25501).
- **"Hazardous waste:"** a waste substance that may either cause or significantly contribute to an increase in mortality or an increase in serious illness, or pose a substantial present or potential hazard to human health or the environment when improperly managed (*California Health and Safety Code*, Section 25117).
- **"Constituent of concern"** or **"contaminant of concern:"** a hazardous material that has the potential to cause damage to human health or the environment, and create a "risk" to human health and the environment.

EXPOSURE PATHWAYS AND ROUTES

- **"Exposure pathway:"** the course a chemical or pollutant takes from the source to the organism exposed. A "complete" exposure pathway consists of four elements:
  - Chemical sources
  - Migration routes (i.e., transport in the environment)
  - An exposure point for contact (i.e., soil, air, or, water)
  - Exposure routes
- **"Exposure route"** is the way a chemical or pollutant enters an organism after contact. Four exposure routes are recognized in risk evaluation methods: ingestion, inhalation, dermal (skin and eye), and injection.

SITE AND WASTE CHARACTERIZATION

- **Site Characterization**
  - Describes the nature and extent of contaminants
- **Waste Characterization**
  - Describes the nature and extent of materials within the landfill

GENERAL PRINCIPALS OF SITE REMEDIATION AND TITLE 27 LANDFILL CLOSURE

BASIC POINTS ABOUT ENVIRONMENTAL REMEDIATION

- Environmental remediation is guided by robust regulatory oversight at the state level.
- In the last 30 years, CCLR is not aware of known adverse health or environmental impacts on a remediated site.
- Sites are rarely cleaned up to "pristine" levels. *Why?*
- Clean-up numbers in look-up tables are based on *conservative, prescriptive numbers* or *risk assessments*.

CENTER FOR CREATIVE LAND RECYCLING

FROM RISK ASSESSMENT TO RISK-BASED CLEAN-UP

- Clean-up numbers are applied based on local land use
  - Default, conservative cleanup numbers exist for all land uses
  - Site-specific cleanup numbers can be established with risk assessments
- Commercially-zoned property will be set to commercial cleanup standards unless a land use change is contemplated.
  - Residential standards/unrestricted use: most conservative standards, used at sites where exposure to soil and groundwater is safe for all occupants and all uses
  - Sites not cleaned up to unrestricted use will have Engineering Controls and Institutional Controls

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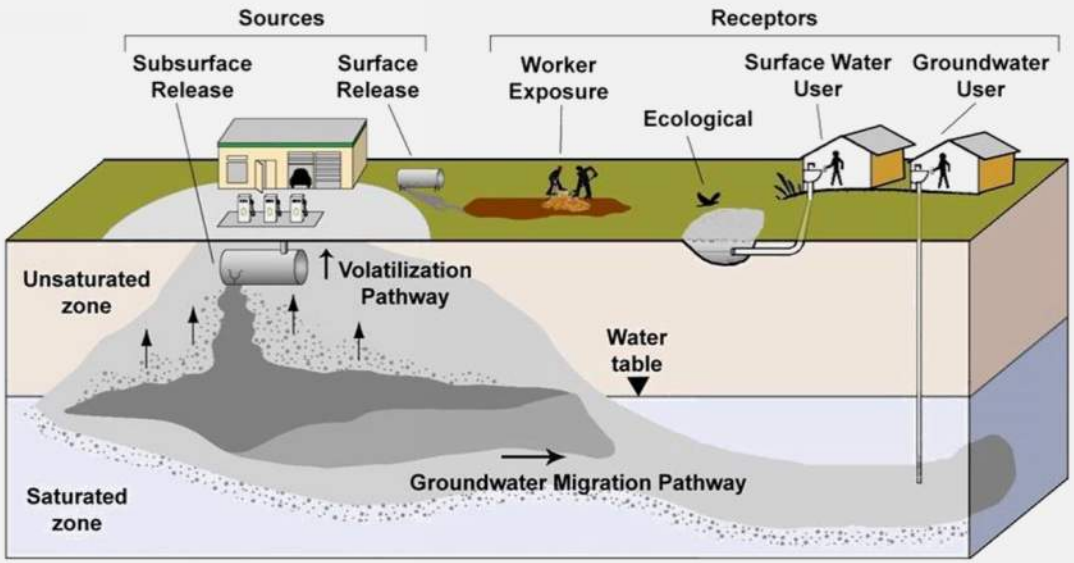
RISK ASSESSMENT

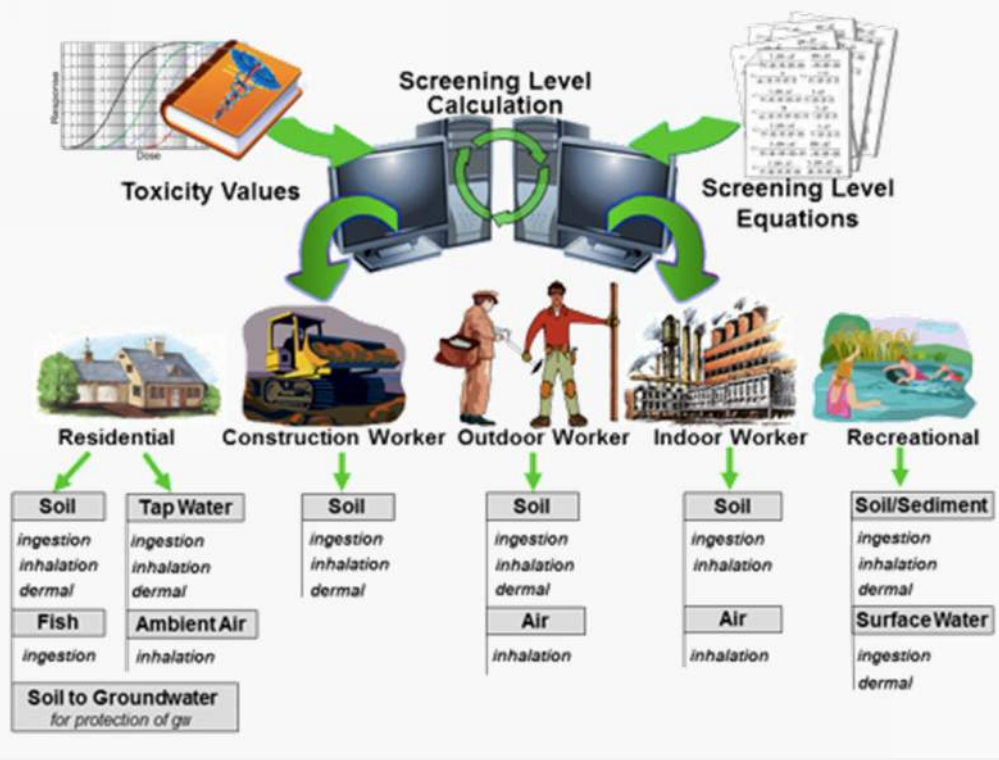
Required by regulatory agencies in most cases

"a site-specific characterization of the current or potential threats that may be posed to human health and the environment by contamination migrating to or in groundwater or surface water, discharging to the air, leaching through or remaining in soil, bio-accumulating in the food chain, or other complete and significant exposure pathways…"



"What are the risks of leaving contamination in place?"

CLEANUP NUMBERS IN LOOK-UP TABLES



Screening Level Calculation Chart from EPA

- Cleanup numbers developed using risk assessments - Modeling based on:
  - Exposure: media & pathway
  - Duration & land use
  - Receptor

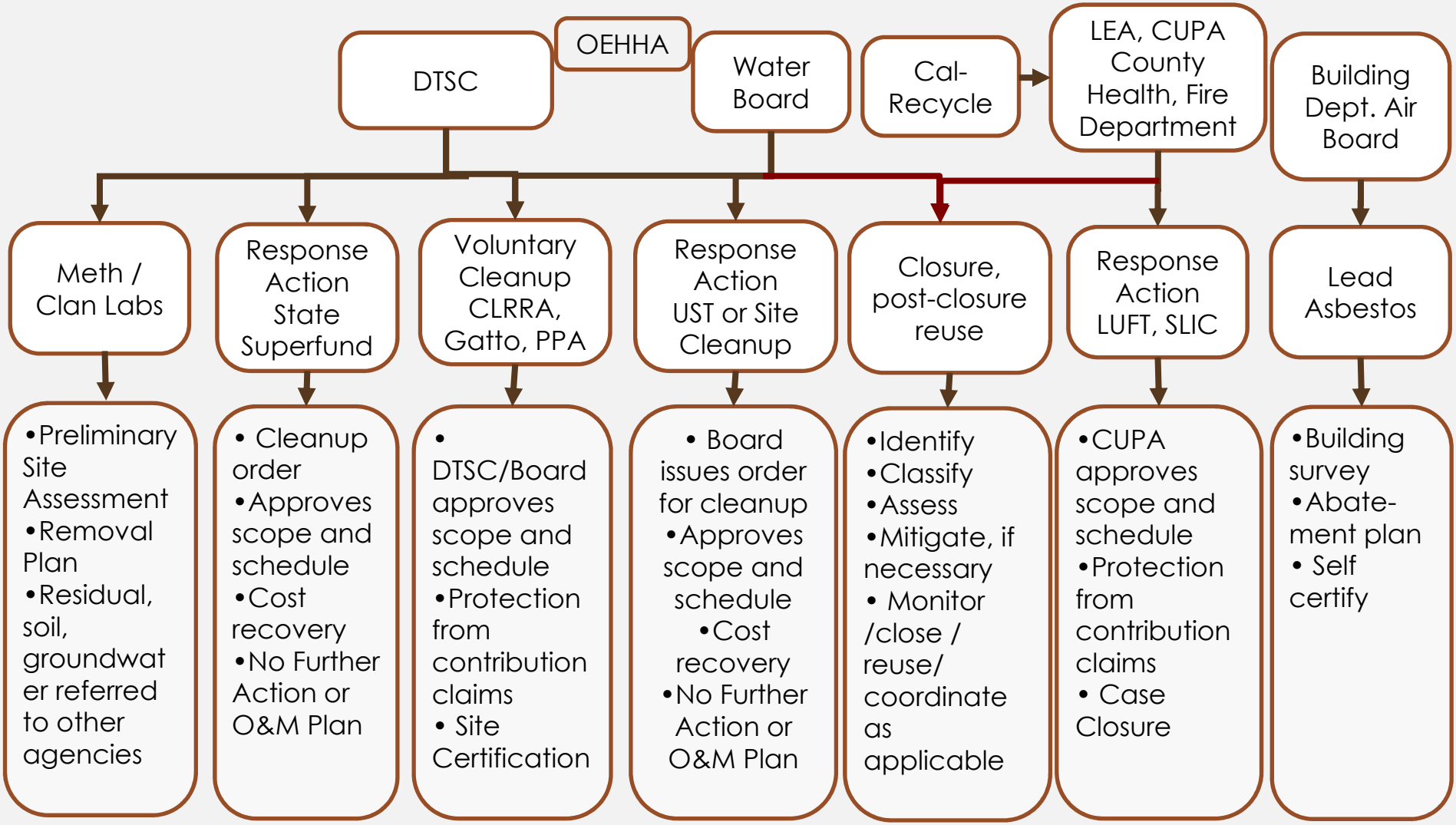
EPA

- Regional Screening Levels

California

- California Human Health Screening Levels
- Environmental Screening Levels

REGULATORY INVOLVEMENT



REGULATORY INVOLVEMENT AND CLEANUP STANDARDS

For sites not cleaned to unrestricted levels, focus on protecting human and environmental health by:

- Measures to ensure protection now and in the future
- Block exposure pathways to people and the environment.
- When residual contamination needs to be managed:
  - Engineering Controls (EC)
  - Institutional Controls (IC)
  - Land Use Controls (LUC)

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MORE ABOUT ENGINEERING AND INSTITUTIONAL CONTROLS

- Engineering Controls (EC) – block pathways between remaining contaminants and receptors
  - Podium design to close pathways from ground to living areas
  - Caps, subsurface walls and fences to prevent access/exposure
  - Venting systems to disperse vapors; alarms to monitor gases
- Institutional Controls (IC) – governmental and regulatory tools
  - Deed restrictions and zoning to alert planning and building
  - Inspections of engineering controls – one to five-year schedule
  - Databases and permit process – Envirostor and Geotracker
  - Third party arrangements for:
    - Financial Assurance and insurance
    - O&M management and Inspection

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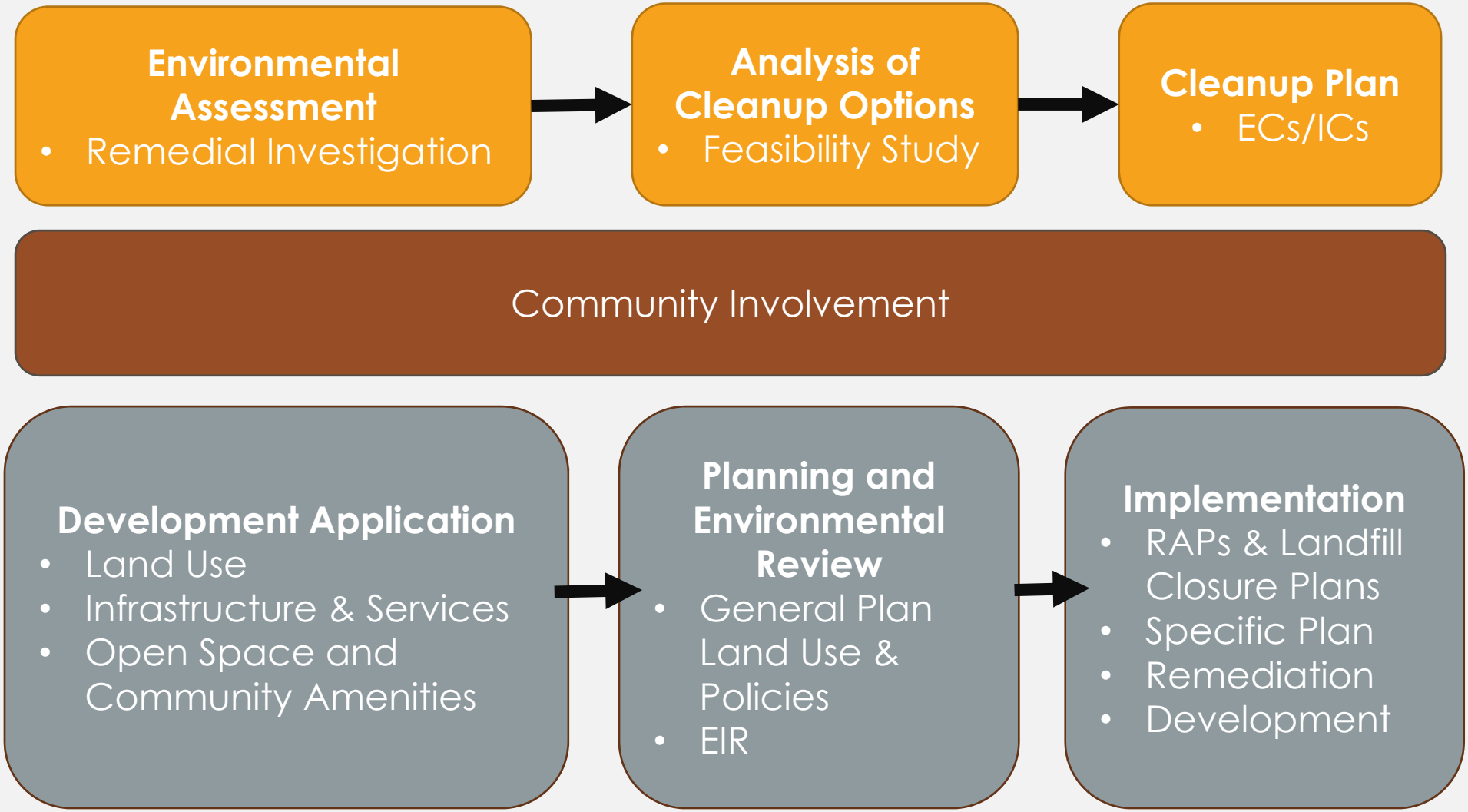
INTEGRATING CLEANUP & SITE DEVELOPMENT



MORE ABOUT REGULATORY INVOLVEMENT, CONTINUED

- Cleanups > $2M require CEQA and public participation
- DTSC assigns public involvement staff
- Risk assessments conducted to address impacts during remediation
  - Impacts from truck traffic, noise, dust

POST-CLEANUP PROCEDURES

- No Further Action (NFA)/certification/closure
  - Issued when corrective action and operations and maintenance allow for protection of the public and environment
- Reopeners
  - Seldom exercised after NFA/certification/closure
  - When new standards exist, only upon:
    - New construction/major renovations (akin to nonconforming use)
  - Change in use of site to more sensitive uses

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TITLE 27 LANDFILL CLOSURE

- Installation of a final cover system (low permeability engineered cap) over the landfill
- Operation and maintenance of a landfill gas collection and control system
- Operation and maintenance of a leachate seep collection system
- On-going groundwater, surface water, and leachate quality monitoring and reporting

IN SUMMARY

- Remediation is highly regulated in California
- Remediation plans are communicated to the public, and the public will be involved
- Sites that are not remediated to unrestricted use have continuing obligations to demonstrate safety to the public and the environment
- Site closure is not re-opened except in the case of an application for a new project or building on the site
- Where can a community get technical assistance?

CENTER FOR CREATIVE LAND RECYCLING

EXISTING CONDITIONS

EXISTING CONDITIONS: FORMER RAILYARD

- Operable Unit 1 (OU-1)
  - Volatile Organic Compounds (VOCs)
  - Petroleum Hydrocarbons (e.g., Bunker C oil)
  - Heavy metals
- Operable Unit 2 (OU-2)
  - Petroleum Hydrocarbons
  - Volatile Organic Compounds
  - Heavy metals

EXISTING CONDITIONS: FORMER LANDFILL

- Reflects waste practices during its lifetime (1932-1967)
  - No liners or segregation of wastes
  - No leachate collection systems
  - No records of waste sources (residential, commercial/industrial, inert fill and liquid wastes)
- Approximately 12.5 million cubic yards of waste
- Interim cover placed on the landfill
- Monitoring of leachate and landfill gas ongoing
- Formal closure per CCR Title 27 required

KEY TECHNICAL CONSIDERATIONS

ADEQUACY OF EXISTING SITE AND WASTE CHARACTERIZATION

- Existing site and waste characterization studies determined to be adequate in relation to City's land use determination
  - Reviewed by CDM Smith as part of Draft EIR preparation
  - DEIR and DEIR Comments reviewed by Dr. Susan Mearns, who provided independent peer review - not involved in preparation of the Draft EIR

USE OF RISK-BASED REMEDIATION STANDARDS

- Human health risk assessments set risk-based, site-specific cleanup goals and standards based on:
  - Types and concentrations of contaminants
  - Future intended use of property
  - Expected population that may be exposed during construction and long-term use
  - Anticipated exposure pathways

ADEQUACY OF RISK-BASED REMEDIATION STANDARDS

Residential Risk Analysis

- Population at risk
  - Construction workers
  - Residents
- Exposure of residents:
  - From birth to age 30
  - 24 hours / 7 days per week / 50 weeks per year
  - Assumes continuous consumption, inhalation, contact with contamination
- 1 in 1,000,000 risk of adverse effect
- Accounts for exposure to multiple toxins

Commercial Risk Analysis

- Population at risk
  - Construction workers
  - Onsite workers
- Exposure of onsite workers
  - 25 years as an adult
  - 250 days per year
  - Assumes continuous consumption, inhalation, contact with contamination
- 1 in 100,000 risk of adverse effect
- Accounts for exposure to multiple toxins

ABILITY OF CALIFORNIA REGULATORY AGENCIES TO ENFORCE STANDARDS

- DTSC staffed by individuals with degrees in medicine, advanced toxicology, pharmacology, epidemiology, industrial hygiene, biology, and environmental sciences
- RWQCB uses State EPA staff with similar degrees
- Both agencies' reviewers have their work peer reviewed before comments are disseminated

LONG-TERM LIABILITY

- Liability rests with the property owner
- Merchant builders purchasing property from developer will undertake due diligence, including review of site remediation
- Owners of individual buildings also undertake due diligence
- City could require property owners association to undertake long-term monitoring, such as is occurring at Sierra Point
- Regulatory agencies reserve the ability to request additional characterization and/or remediation if additional contaminants are discovered associated with past site use after closure

KEY POLICY CONSIDERATIONS

EXISTING GENERAL PLAN POLICIES

- **Policy 172**: Remediation is highest priority.
- **Policy 173**: No approval of development until after approval of remediation plan by regulatory agencies.
- **Policy 174**: Include requirements of regulatory in development approvals.
- **Policy 328** (Northeast Bayshore): Control handling of toxic materials and site remediation through regulatory agencies.
- **Policy 368** (Baylands): Comply with remediation plan requirements of regulatory agencies.

EXISTING GENERAL PLAN POLICIES

- **Policy 370** (Baylands): Provide risk assessments in order to mitigate and disclose characteristics of the land and its suitability for development.
- **Policy 371** (Baylands): Disclose underlying assumptions of all risk analyses.
- **Policy 391** (Baylands): Work closely with regulatory agencies to encourage remediation and ongoing monitoring by those agencies.

BAYLANDS SUSTAINABILITY FRAMEWORK

- Recognizes regulatory authority of DTSC and the RWQCB
- Also recognizes there maybe differences between the City and regulatory agencies in relation to standards and application
- Provides for:
  - Determining and applying "highest practical" standards
  - Engaging third part technical expert to assist City
  - Requiring enforceable ongoing financial mechanism to support annual testing and reporting
  - Negotiating standards with developer and regulatory agencies

IN ADDITION TO LAND USE, THE PLANNING COMMISSION RECOMMENDS…

- Working with regulatory agencies to establish the highest practical standards to ensure human health
- Providing input to regulatory agencies, including use of a third party technical expert to:
  - Seek implementation of best practices
  - Seek highest practical standards
  - Review studies, proposed plans, and draft approvals, and provide input
  - Negotiate any differences in standards, requirements, or performance expectations between City, regulatory agencies, and developer
  - Perform regular testing and provide an annual report to Council
  - Establish a financial mechanism to support long-term monitoring

THE PLANNING COMMISSION FURTHER RECOMMENDS ENSURING THAT…

- Site remediation and Title 27 landfill closure plans are approved prior to approval of a specific plan
- Any approved specific plan is consistent with the General Plan and approved remediation/landfill closure plans
- Site remediation is completed prior to development of the Baylands

SITE REMEDIATION AND TITLE 27 LANDFILL CLOSURE PROCESS

- City identifies appropriate land uses within the Baylands (General Plan/Concept Plan level)
- Applicant completes plans for Title 27 landfill closure and Remedial Action Plans for OU-1 and OU-2
  - Regulatory agency review and revisions
  - Project-level CEQA Review
- Review Baylands development regulations (specific plan)
  - Project-level CEQA Review
- Undertake site remediation and Title 27 landfill closure
- Site-specific development within the Baylands

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