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Landfill Redevelopment

Partnerships and Processes

LEA CIWMB PARTNERSHIP CONFERENCE

CATCHING THE WAVE OF COOPERATION

August 1-3, 2006 • Monterey, California

Former Palm Springs Landfill

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View Toward Northwest

Former Palm Springs Landfill

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View Toward West

Overview

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Palm Springs Brownfield Highlights

- 36.6-Acre Municipal Landfill
- Split Ownership (City & Private)
- Active from Early 1930's to Mid 1960's
- Vacant Since Mid-1960's
- Refuse Reduced in Burn Pits

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Palm Springs Brownfield Highlights

- Sewage Treatment Operations in Southern Portion of Site
- Some Hazardous Materials
- Remediated/Developed without Public Money
- Unmaintained and Potentially Dangerous

Overview

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Palm Springs Brownfield Highlights

- Unique Geotechnical Problems
- Complex Air Resource Issues
- Voluntary Cleanup Agreement w/DTSC
- Expedited Remediation
- Public Participation and Support

Is it Possible?

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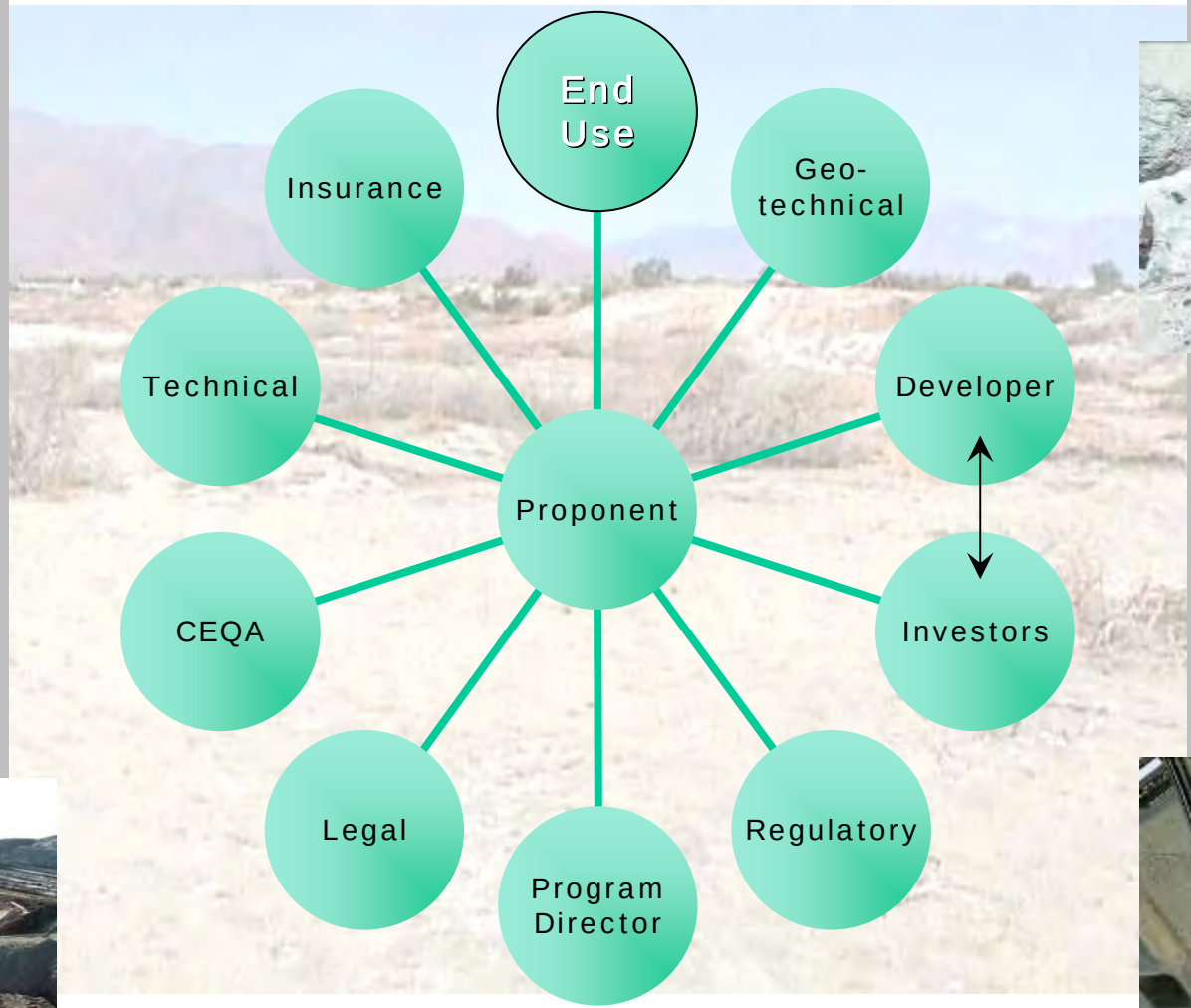
Palm Springs Brownfield Site Redevelopment



Considerations

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- Economic Evaluation
- Lead Oversight Agency?
- Remedial Investigation Complete?
- Remediation & Redevelopment Plan [Removal Action Workplan]

Considerations

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- Removal Action Implementation
- Development Considerations
- Financial Considerations
- Responsibilities
- Redevelopment

Economic Evaluation

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- Elements:
  - What is the "Clean" Land Value?
  - Environmental Liabilities
    - Cost
    - Intangibles
  - Development Costs
  - Funding / Financing / Economy
  - Insurance
  - Future Land Use
  - Risk Factors & Contingencies

Lead Oversight Agency

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- Selection Criteria:
  - Authority to Oversee Project
  - Technical Understanding
  - Support Redevelopment
  - Staff Availability
  - Existing Mechanism for Cost Reimbursement
  - Team Player
  - Cooperative / Helpful

The "Plan"

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- Defined SOW and Budget w/DTSC
- Iterative Feasibility Evaluation with DTSC
  - Environmental
  - Economics
  - Geotechnical
  - Public
- Landfill Material Required to Stay Within Existing Footprint

The "Plan"

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- Air Emissions
  - Heavy Equipment: Scrapers Fitted with Catalytic Converters to Maintain NO_x < 100 lb/day.
  - Fugitive Emissions
- Landfill Excavation and Replacement
- Weather Conditions
- Dust Control
- Landfill Gas Collection System

The "Plan"

- Contingencies for Management of Potentially Hazardous Materials
- Contingencies for Management of Potential Chemical Agent Identification Sets
- Health & Safety & PPE
- Long Term Monitoring

Development Criteria

- Future Land Use:
  - Land Value
  - Geotechnical
  - Tennant Requirements
  - Mitigations
  - Land Use Restrictions / Deed Restrictions
  - Long-Term Liability

Development Highlights

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- Former Palm Springs Landfill
- City of Commerce Landfill
- Cemetery Expansion – Palos Verdes

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Former Palm Springs Landfill

- Landfill with depths from 3 to 23 feet.
- Removed and consolidated over 600,000 cy of landfill material.
- Excavated and compacted over 400,000 cy of clean soil, including a 3-foot "clean" cap.
- Landfill material consolidated in deed restricted area in the center of the property with 400,000 sf shopping center around perimeter.
- Key to success was accurate prediction of blended landfill material.
- Landfill/native interface visually obvious allowing productive excavation.
- Lead main contaminant of concern with no migration below landfill native interface.
- Had to Modify Cell Configuration During Project.

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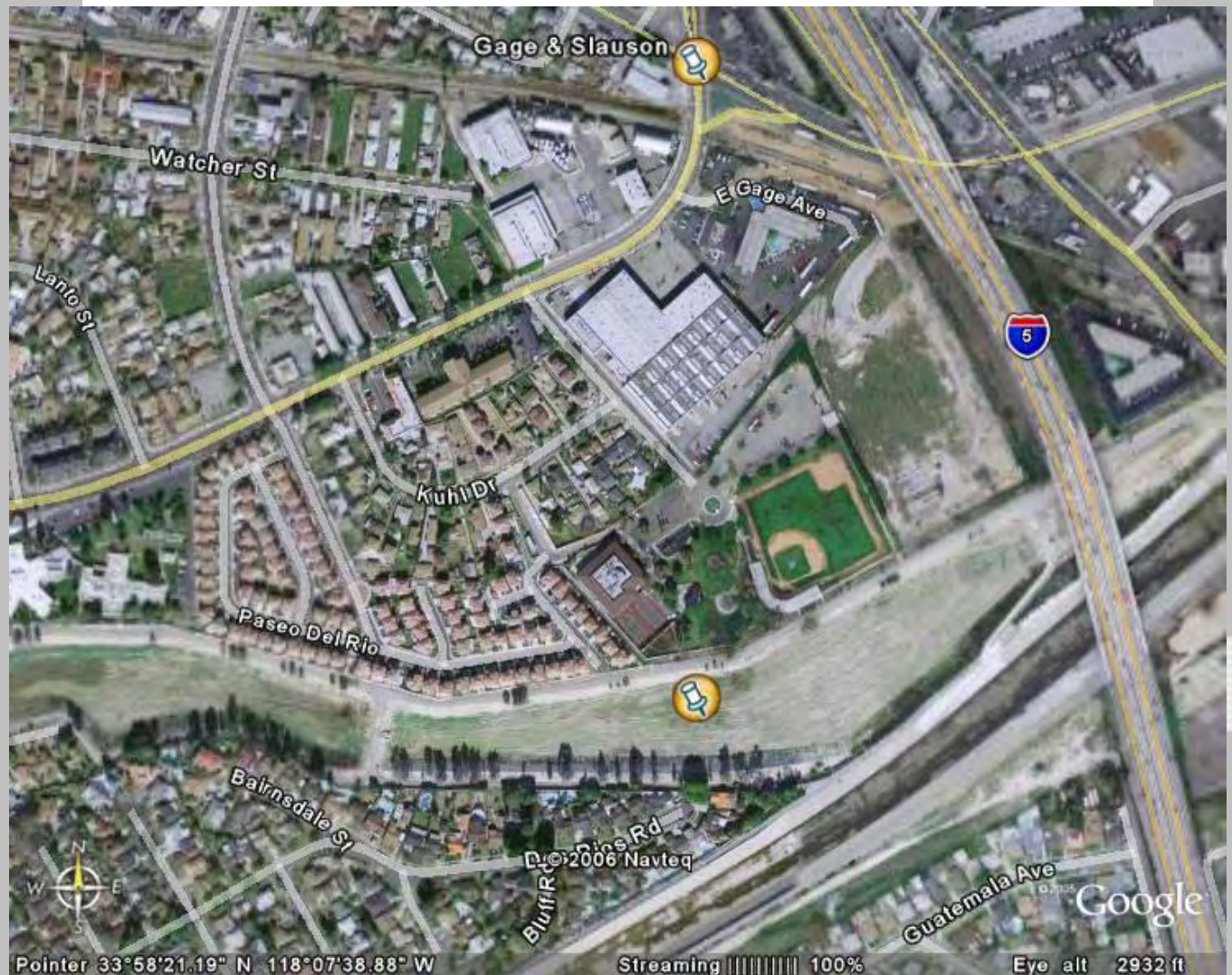
City of Commerce Landfill



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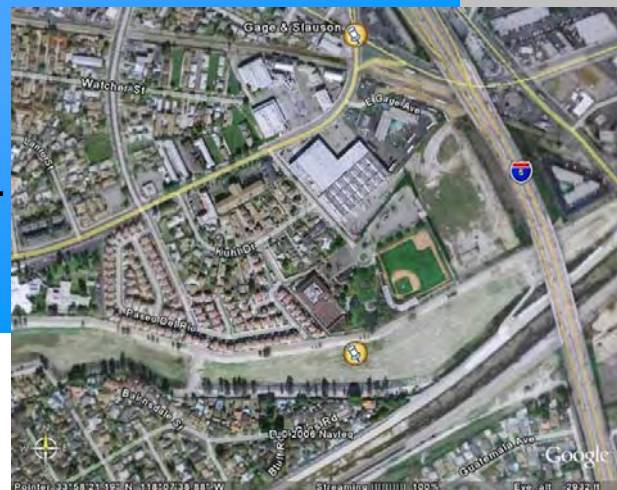
City of Commerce Landfill

- Landfill Material Consisted of Rubber Waste from Tire Manufacture and Debris from the Long Beach Earthquake (1920-1950's)
- Volume of Landfill Approximately 300,000 cy.
- Little Organic Degradation – Legible Newspaper from 1920's.
- Lesson Learned – Separating Waste Streams Concentrated Lead Contamination in Soil.
- Lead was Contaminate of Concern. Lead Levels Dropped to Background Levels Immediately Below Landfill/Native Interface.
- Separated Waste Streams were Recycled or Disposed of Off-Site.
- Clean Dirt Imported and Compacted for Future High-Density Residential Development.



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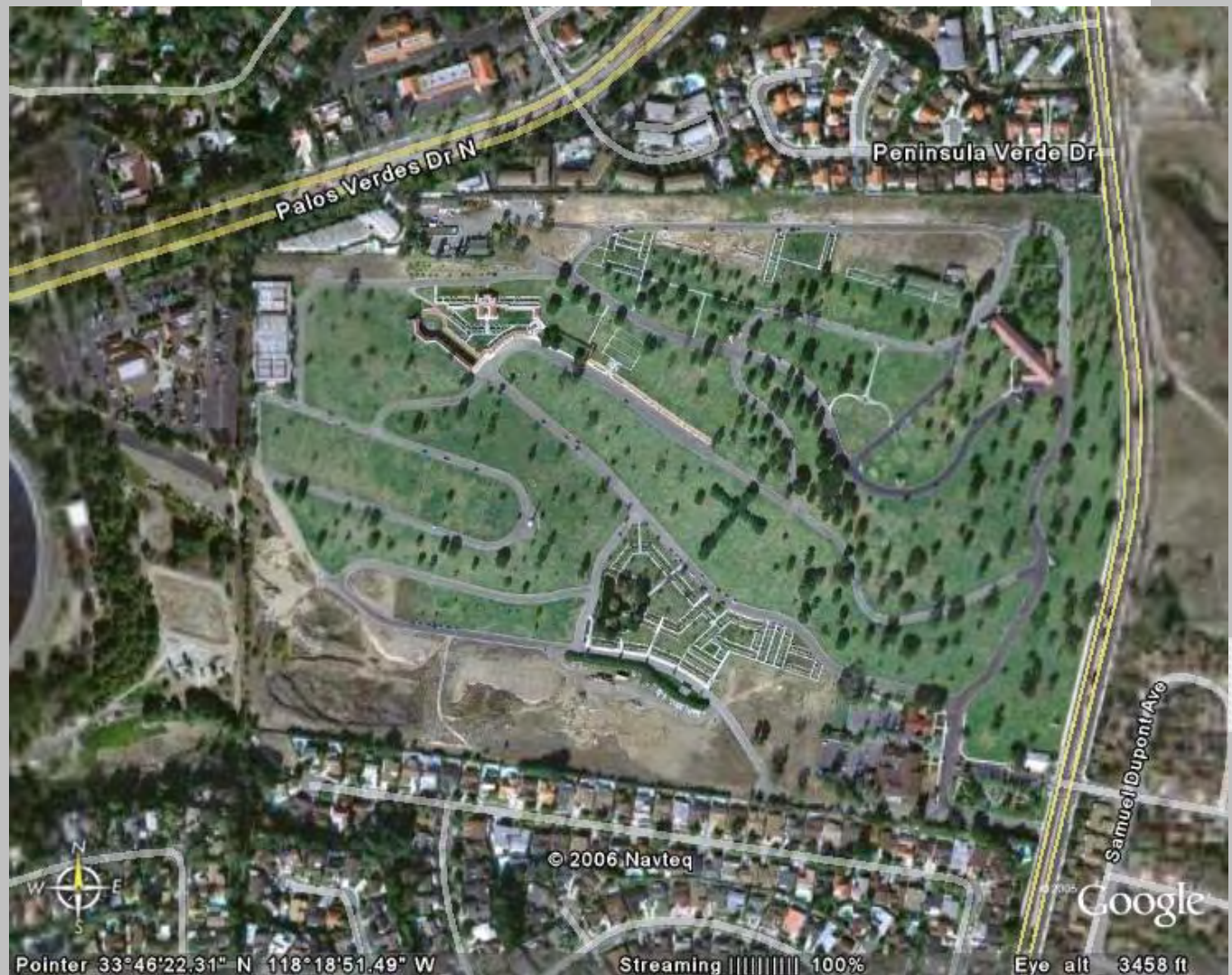
Cemetery Expansion – Palos Verdes



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Cemetery Expansion – Palos Verdes

- Former Rock Quarry Filled with Approximately 150,000 cy of Steel Producing By-Products Including Foundry Sand, Slag and Baghouse Dust.
- Landfill Consolidated into Smaller and Deeper area with Liners Below and Above Material.
- Eight ft of Clean Soil Above Landfilled Material for Double-Level Caskets and Turf.
- Extremely Strict Clean Up Levels Required by Cemetery Management.
- Lead was the Primary Contaminant of Concern.
- Landfill/Native Interface Visually Obvious Allowing Productive Excavation.
- Lead Did Not Migrate Below Landfill/Native Interface.