



# **RTC 4<sup>th</sup> Street Station**

**(the “untold stories”)**

**By: Chris M. Tschirhart, MBA, PE**  
**For: Nevada Transportation Conference**  
**March 24, 2010**

# RTC 4<sup>TH</sup> STREET STATION

200 E 4<sup>th</sup> Street, Reno (next to Natl. Bowling Stadium)

Begin construction in April 2009, Open in Fall 2010



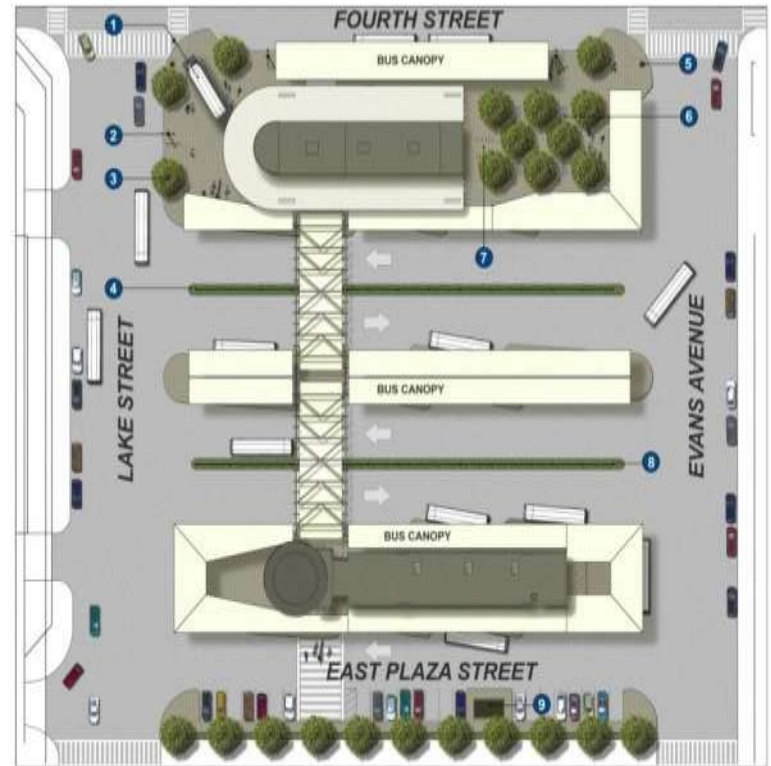
 **4TH STREET STATION**

 **PARSONS  
BRINCKERHOFF**



## Key features

- **23** bus bays (with canopies)
- Three transit islands
- 14,900 SF of transit buildings
- Passenger amenities
- **Green** building
- Public art
- Transit-serving retail
- Quality landscaping



# Project Timeline

Date	Tasks
• March 2003	FTA approved FONSI
• Jan 2003 – Dec 2008	Site Planning & Design
• May 2004 - Aug 2008	Property Acquisition & Relocations
• Jan – June 2006	Building Demolition
• Sept 2008 – Dec 2008	Sitework prep, remediation & sewer relocation
• Apr 2009 – Summer 2010	Construction
• Fall 2010	Begin transit operations

## Things you may not know

- Demolition ...do it quickly, but let the PD & FD play
- Environmental Remediation ...never seems to end
- LEED ...opportunities to reduce operating costs
- Roadway Reconstruction ...in downtown Reno is fun!
- Buy America ...all eyes on deck
- Re-design for BRT ...during the middle of construction
- Mock-ups ...help me sleep at night
- Canopy columns ...are driving the contractor crazy
- Bird Control ...is like a chess game
- Public Art ...the story of “Jackson” bus sculpture





# Demolition

(Do it quickly - Bob was right!)

**Grand Hotel**



One entry point

**Roulette Motel**



Reno SWAT training "scars"

## **Environmental Clean-up (the never ending story)**

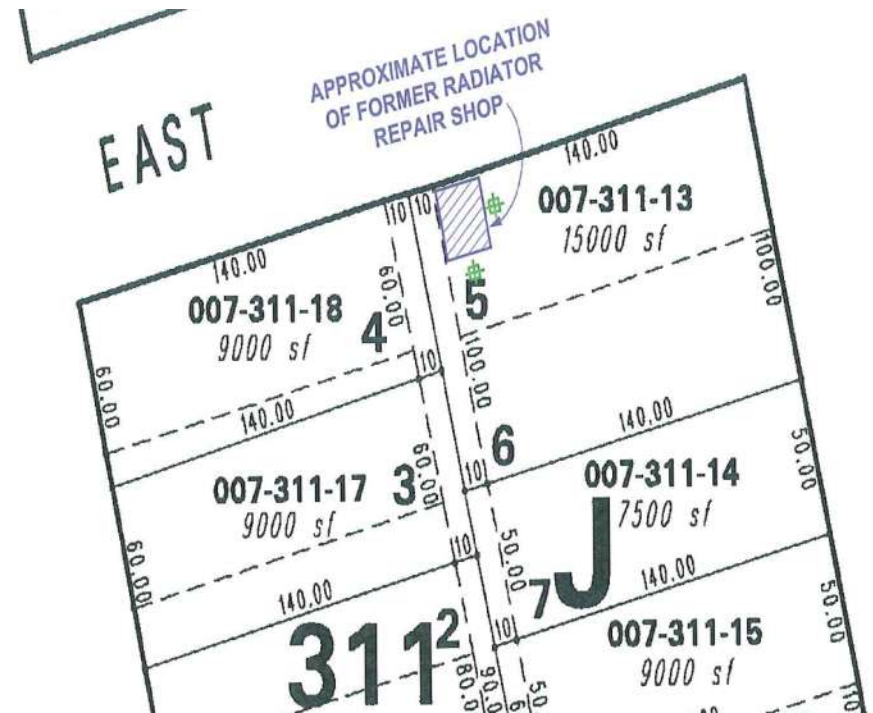
- Brownfield grants through NDEP and US EPA:
  - Phase 1 & 2 ESAs (search for the “mother lode”)
  - Pulled “round 1” tanks
- Round 1: Removed 8 USTs (Dec 2007)
- Round 2: Sitework prep contract (Fall 2008)
  - Removed 10 more USTs
  - Lead remediation
- Round 3: Removed 3 more USTs (Fall 2009)
  - Found under sidewalks in 4<sup>th</sup> St right-of-way during construction

# USTs and Lead

## Round 1: USTs



## Round 2: Lead & more USTs





## Round 3: Discovery of UST (#21) (guard duty...why?)



## Dirty dirt, stinky dirt & soil staining





# Discussing options (how do we get this out of the hole without...?)



# Removing product from UST (again & again & again)





# Roadway Reconstruction

- Reconstruction of three adjoining streets in downtown Reno:
  - 4<sup>th</sup> Street (asphalt)
  - Lake Street (PCC)
  - Evans Avenue (PCC)
- Multiple generations of utilities ...dead or alive?
- Pedestrians ...are like herding cats



## 4<sup>th</sup> Street (north side)

Creating a bathtub earned a hearing with the NV PUC



## 4<sup>th</sup> Street (south side)

**“Shaving” of slurry trench**



**Soil stabilization with geotextiles**





## **4<sup>th</sup> & Evans** **(the boulder from hell)**

- **Discovered when laying conduit for new traffic signal**
- **All the other utilities took the “go around it” options**
- **Blunt force trauma is my friend!**



# Lake Street (utilities)

Living dangerously

.....has a price!





# Buy America

- After installation, foreign made column found
- Removal & replacement at no cost to RTC
- Ongoing challenge: submittals, inspect deliveries
- Project team: all eyes focused on issue





# **Green Building**

- **LEED – Leadership in Energy and Environmental Design**
- **4<sup>th</sup> Street Station – target is LEED Silver**
- **Six Categories**
  - Sustainable Sites
  - Water Efficiency
  - Energy & Atmosphere
  - Materials & Resources
  - Indoor Environmental Quality
  - Innovation & Design
- **Opportunities to reduce operating costs**

# Onsite infiltration



# Contractor also has to earn points...

**Recycling construction waste**



**Keeping dust out of HVAC system**



**UNIVERSITY OF ILLINOIS AT CHICAGO**

**INTRODUCTION**

**1.0 CAMPUS OVERVIEW**

**2.0 CAMPUS MAP**

**3.0 CAMPUS MAP**

**4.0 CAMPUS MAP**

**5.0 CAMPUS MAP**

**6.0 CAMPUS MAP**

**7.0 CAMPUS MAP**

**8.0 CAMPUS MAP**

**9.0 CAMPUS MAP**

**10.0 CAMPUS MAP**

**11.0 CAMPUS MAP**

**12.0 CAMPUS MAP**

**13.0 CAMPUS MAP**

**14.0 CAMPUS MAP**

**15.0 CAMPUS MAP**

**16.0 CAMPUS MAP**

**17.0 CAMPUS MAP**

**18.0 CAMPUS MAP**

**19.0 CAMPUS MAP**

**20.0 CAMPUS MAP**

**21.0 CAMPUS MAP**

**22.0 CAMPUS MAP**

**23.0 CAMPUS MAP**

**24.0 CAMPUS MAP**

**25.0 CAMPUS MAP**

**26.0 CAMPUS MAP**

**27.0 CAMPUS MAP**

**28.0 CAMPUS MAP**

**29.0 CAMPUS MAP**

**30.0 CAMPUS MAP**

**31.0 CAMPUS MAP**

**32.0 CAMPUS MAP**

**33.0 CAMPUS MAP**

**34.0 CAMPUS MAP**

**35.0 CAMPUS MAP**

**36.0 CAMPUS MAP**

**37.0 CAMPUS MAP**

**38.0 CAMPUS MAP**

**39.0 CAMPUS MAP**

**40.0 CAMPUS MAP**

**41.0 CAMPUS MAP**

**42.0 CAMPUS MAP**

**43.0 CAMPUS MAP**

**44.0 CAMPUS MAP**

**45.0 CAMPUS MAP**

**46.0 CAMPUS MAP**

**47.0 CAMPUS MAP**

**48.0 CAMPUS MAP**

**49.0 CAMPUS MAP**

**50.0 CAMPUS MAP**

**51.0 CAMPUS MAP**

**52.0 CAMPUS MAP**

**53.0 CAMPUS MAP**

**54.0 CAMPUS MAP**

**55.0 CAMPUS MAP**

**56.0 CAMPUS MAP**

**57.0 CAMPUS MAP**

**58.0 CAMPUS MAP**

**59.0 CAMPUS MAP**

**60.0 CAMPUS MAP**

**61.0 CAMPUS MAP**

**62.0 CAMPUS MAP**

**63.0 CAMPUS MAP**

**64.0 CAMPUS MAP**

**65.0 CAMPUS MAP**

**66.0 CAMPUS MAP**

**67.0 CAMPUS MAP**

**68.0 CAMPUS MAP**

**69.0 CAMPUS MAP**

**70.0 CAMPUS MAP**

**71.0 CAMPUS MAP**

**72.0 CAMPUS MAP**

**73.0 CAMPUS MAP**

**74.0 CAMPUS MAP**

**75.0 CAMPUS MAP**

**76.0 CAMPUS MAP**

**77.0 CAMPUS MAP**

**78.0 CAMPUS MAP**

**79.0 CAMPUS MAP**

**80.0 CAMPUS MAP**

**81.0 CAMPUS MAP**

**82.0 CAMPUS MAP**

**83.0 CAMPUS MAP**

**84.0 CAMPUS MAP**

**85.0 CAMPUS MAP**

**86.0 CAMPUS MAP**

**87.0 CAMPUS MAP**

**88.0 CAMPUS MAP**

**89.0 CAMPUS MAP**

**90.0 CAMPUS MAP**

**91.0 CAMPUS MAP**

**92.0 CAMPUS MAP**

**93.0 CAMPUS MAP**

**94.0 CAMPUS MAP**

**95.0 CAMPUS MAP**

**96.0 CAMPUS MAP**

**97.0 CAMPUS MAP**

**98.0 CAMPUS MAP**

**99.0 CAMPUS MAP**

**100.0 CAMPUS MAP**

**101.0 CAMPUS MAP**

**102.0 CAMPUS MAP**

**103.0 CAMPUS MAP**

**104.0 CAMPUS MAP**

**105.0 CAMPUS MAP**

**106.0 CAMPUS MAP**

**107.0 CAMPUS MAP**

**108.0 CAMPUS MAP**

**109.0 CAMPUS MAP**

**110.0 CAMPUS MAP**

**111.0 CAMPUS MAP**

**112.0 CAMPUS MAP**

**113.0 CAMPUS MAP**

**114.0 CAMPUS MAP**

**115.0 CAMPUS MAP**

**116.0 CAMPUS MAP**

**117.0 CAMPUS MAP**

**118.0 CAMPUS MAP**

**119.0 CAMPUS MAP**

**120.0 CAMPUS MAP**

**121.0 CAMPUS MAP**

**122.0 CAMPUS MAP**

**123.0 CAMPUS MAP**

**124.0 CAMPUS MAP**

**125.0 CAMPUS MAP**

**126.0 CAMPUS MAP**

**127.0 CAMPUS MAP**

**128.0 CAMPUS MAP**

**129.0 CAMPUS MAP**

**130.0 CAMPUS MAP**

**131.0 CAMPUS MAP**

**132.0 CAMPUS MAP**

**133.0 CAMPUS MAP**

**134.0 CAMPUS MAP**

**135.0 CAMPUS MAP**

**136.0 CAMPUS MAP**

**137.0 CAMPUS MAP**

**138.0 CAMPUS MAP**

**139.0 CAMPUS MAP**

**140.0 CAMPUS MAP**

**141.0 CAMPUS MAP**

**142.0 CAMPUS MAP**

**143.0 CAMPUS MAP**

**144.0 CAMPUS MAP**

**145.0 CAMPUS MAP**

**146.0 CAMPUS MAP**

**147.0 CAMPUS MAP**

**148.0 CAMPUS MAP**

**149.0 CAMPUS MAP**

**150.0 CAMPUS MAP**

**151.0 CAMPUS MAP**

**152.0 CAMPUS MAP**

**153.0 CAMPUS MAP**

**154.0 CAMPUS MAP**

**155.0 CAMPUS MAP**

**156.0 CAMPUS MAP**

**157.0 CAMPUS MAP**

**158.0 CAMPUS MAP**

**159.0 CAMPUS MAP**

**160.0 CAMPUS MAP**

**161.0 CAMPUS MAP**

**162.0 CAMPUS MAP**

**163.0 CAMPUS MAP**

**164.0 CAMPUS MAP**

**165.0 CAMPUS MAP**

**166.0 CAMPUS MAP**

**167.0 CAMPUS MAP**

**168.0 CAMPUS MAP**

**169.0 CAMPUS MAP**

**170.0 CAMPUS MAP**

**171.0 CAMPUS MAP**

**172.0 CAMPUS MAP**

**173.0 CAMPUS MAP**

**174.0 CAMPUS MAP**

**175.0 CAMPUS MAP**

**176.0 CAMPUS MAP**

**177.0 CAMPUS MAP**

**178.0 CAMPUS MAP**

**179.0 CAMPUS MAP**

**180.0 CAMPUS MAP**

**181.0 CAMPUS MAP**

**182.0 CAMPUS MAP**

**183.0 CAMPUS MAP**

**184.0 CAMPUS MAP**

**185.0 CAMPUS MAP**

**186.0 CAMPUS MAP**

**187.0 CAMPUS MAP**

**188.0 CAMPUS MAP**

**189.0 CAMPUS MAP**

**190.0 CAMPUS MAP**

**191.0 CAMPUS MAP**

**192.0 CAMPUS MAP**

**193.0 CAMPUS MAP**

**194.0 CAMPUS MAP**

**195.0 CAMPUS MAP**

**196.0 CAMPUS MAP**

**197.0 CAMPUS MAP**

**198.0 CAMPUS MAP**

**199.0 CAMPUS MAP**

**200.0 CAMPUS MAP**

**201.0 CAMPUS MAP**

**202.0 CAMPUS MAP**

**203.0 CAMPUS MAP**

**204.0 CAMPUS MAP**

**205.0 CAMPUS MAP**

**206.0 CAMPUS MAP**

**207.0 CAMPUS MAP**

**208.0 CAMPUS MAP**

**209.0 CAMPUS MAP**

**210.0 CAMPUS MAP**

**211.0 CAMPUS MAP**

**212.0 CAMPUS MAP**

**213.0 CAMPUS MAP**

**214.0 CAMPUS MAP**

**215.0 CAMPUS MAP**

**216.0 CAMPUS MAP**

**217.0 CAMPUS MAP**

**218.0 CAMPUS MAP**

**219.0 CAMPUS MAP**

**220.0 CAMPUS MAP**

**221.0 CAMPUS MAP**

**222.0 CAMPUS MAP**

**223.0 CAMPUS MAP**

**224.0 CAMPUS MAP**

**225.0 CAMPUS MAP**

**226.0 CAMPUS MAP**

**227.0 CAMPUS MAP**

**228.0 CAMPUS MAP**



# **Mock-up for redesigned center island (using “borrowed” buses in Eugene, OR - 02Jan10)**





# More pictures of the mock-up...

## Docking maneuver



## Turning movement



# First mock-up

(full size mock-ups verify turning movements & docking maneuvers)

## Turning & docking



## Layout overview



Reno - Stead Airport in Jan 2008



# Bus & Pedestrian Canopies

- Integral to bus operations
- Protection from the elements
- Aesthetics
- Cost: ~ \$1.7 million





# 62 canopy columns (under construction...so far so good)

## Foundation steel



## Column steel



# The fun starts here!

(aesthetically challenged)

Placing concrete in forms

Before & after sandblasting





# Time for Plan B?

**Protection from rust & other trades?**



**Rust, two-toned, seams, & non-uniform appearance**



**This story is just beginning....**

# **Bird Control**

## **(is like a chess game)**

- Bird issues at existing CitiCenter (2 blocks west)
- Bird problems can lead to:
  - Unattractive surroundings for customers
  - Concern by local health department
  - Ongoing maintenance expense for staff
- Flocking birds versus roosting birds
- Control measures:
  - 4 miles of bird spikes
  - bird buffers (aerosol spray units)
  - Don't feed the birds!
- Innovative suggestions

# Nature's method of bird control

Where's lunch?



I hope I'm invisible...



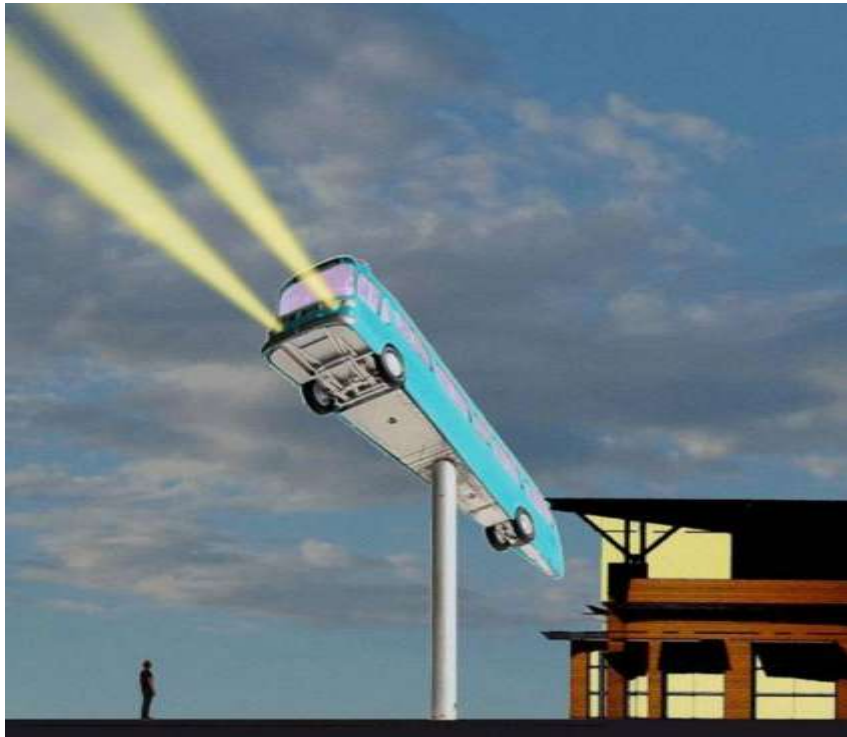


# Public Art

- FTA Arts-in-Transit program
- Call-for-Artists (600+ mailed out, 60+ responses)
- Public art selection panel
- Selected artist based on prior experience
- Donald Lipski selected for both Reno & Sparks
- For more information, go to:
  - artwork video on RTC's website:
    - <http://www.rtcwashoe.com/public-transportation-26-45.html>
  - artist's website: <http://donaldlipski.net/>

# Bus Sculpture: “Jackson”

Concept



Progress photo



## Things you now know!

- Demolition ...do it quickly, but let the PD & FD play
- Environmental Remediation ...never seems to end
- LEED ...opportunities to reduce operating costs
- Roadway Reconstruction ...in downtown Reno is fun!
- Buy America ...all eyes on deck
- Re-design for BRT ...during the middle of construction
- Mock-ups ...help me sleep at night
- Canopy columns ...are driving the contractor crazy
- Bird Control ...is like a chess game
- Public Art ...the story of “Jackson” bus sculpture





# Thanks!

- Questions?
- Project webcam can be viewed at [rtcwashoe.com](http://rtcwashoe.com)

