

Charlie Kirk Memorial Crossing

White paper — Two valleys, two futures

2026-09-17 · Concept only · Expanded draft (substance from phase screens, jobs memo, cost screen, soft-soil precedents, difficulty rubric, Fable source pack)

Not surveyed, funded, permitted, or endorsed by UDOT, MAG, cities, or Olympic hosts. **No** invented Kirk Crossing capital costs, job totals, BCR, travel-time guarantees, tax revenue, or endorsements. Analog ranges and desktop screens are labeled as such.

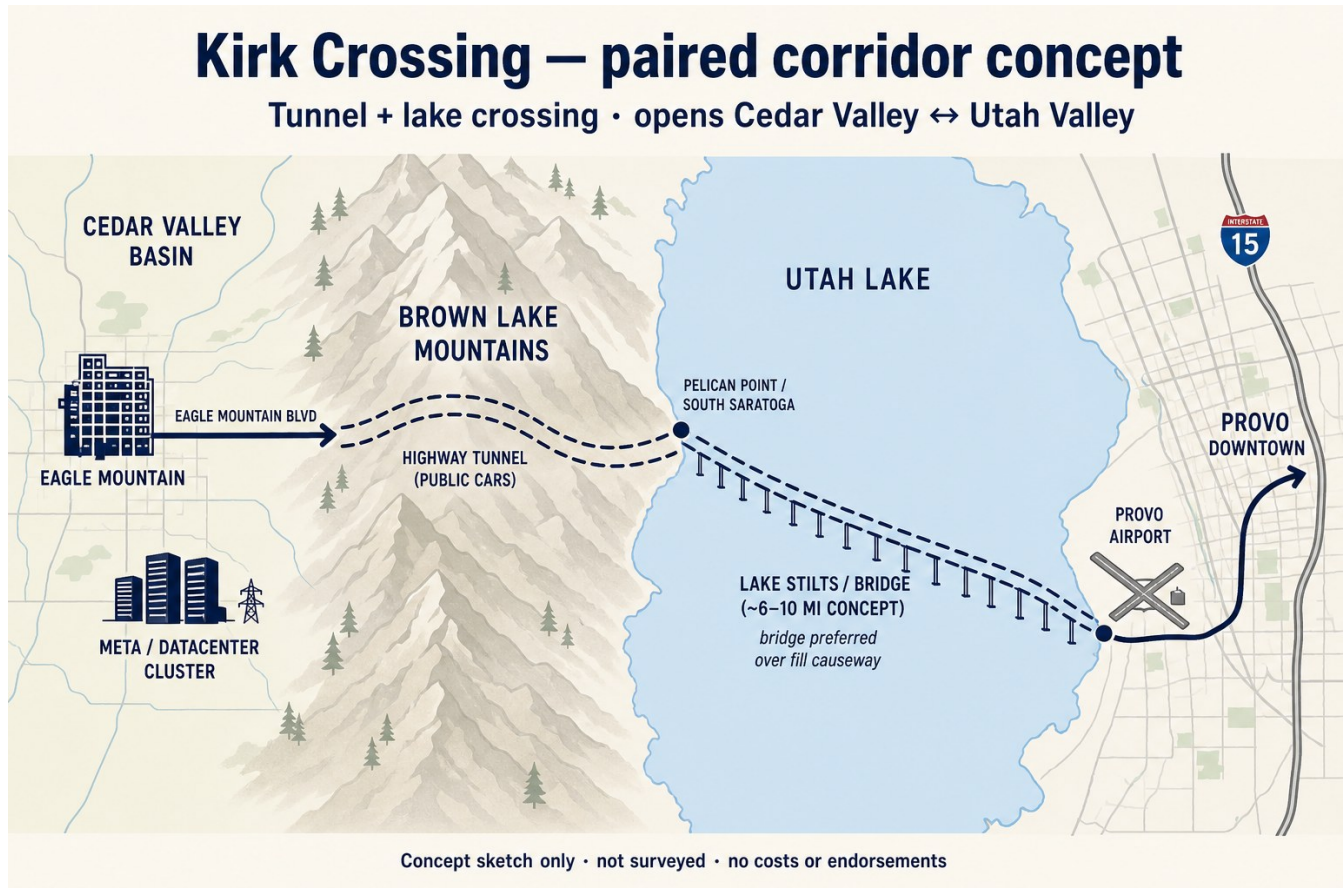
Honesty box (read first)

This paper does	This paper does not
Describe a paired concept: Lake Mountain highway tunnel + Utah Lake stilts bridge toward Provo Airport / downtown	Claim the corridor is funded, permitted, designed, or under construction
Cite published MAG growth forecasts, surface arterial cost bands, agency lake cost <i>class</i> talk, and out-of-state megaproject analogs	Invent a Kirk Crossing bid price, job count, or minute savings
Track live processes: surface Lake Mountain Corridor , UDOT+MAG Northern Utah County PEL	Claim UDOT, MAG, city, or Olympic-host endorsement
Prefer stilts/bridge over fill causeway on hydrology/env literature	Promise congestion repeal on I-15 or “pays for itself”
Separate construction-phase employment <i>method</i> from permanent ops and from campus (Meta/QTS) jobs	Attribute datacenter permanent jobs to this road

Mode lock: public cars and trucks in a highway tunnel. Loop-style shuttle rejected.

Primary O/D: Eagle Mountain city center → Provo downtown. Airport shortcut is secondary.

Olympics 2034: timing context for statewide mobility seriousness — **not** a Games project claim.



Sketch only. Not surveyed. No costs or endorsements. Route table and portal details are in §3 below.

1. Executive abstract

Utah County is planned to grow toward roughly **1.3 million people by 2050**, with employment nearly doubling (MAG TransPlan50). Cedar Valley — Eagle Mountain and neighbors — is filling with homes, power infrastructure, and data campuses. Utah Valley holds the denser job centers, schools, Provo Municipal Airport, and I-15. Between those basins sit two hard barriers: **Lake Mountain** and **Utah Lake**.

Today the practical path from Eagle Mountain toward Provo is the long way around: north via Pony Express / Pioneer Crossing / I-15, or south loops through Goshen–Santaquin. That geometry works. It also imposes a recurring **detour cost in time** as west-side population and employment rise.

Kirk Crossing is a concept-only paired corridor dedicated in Charlie Kirk's name:

1. A **Lake Mountain highway tunnel** (~2–3 mi concept) with a west portal off Eagle Mountain Boulevard near city-center fabric, a gentle S-curve under the ridge, and an east portal near Pelican Point / south Saratoga shore.
2. A **Utah Lake stilts bridge** (~6–10 mi open water), elevated on friction-pile “stilts,” not a dirt-fill causeway, aimed toward the Provo Airport vicinity, then downtown and I-15.

Either piece alone fails the primary trip. Tunnel without lake still leaves Provo behind a shoreline. Lake without tunnel never opens Cedar Valley. Together they are a through corridor — if studied, funded, and built.

This paper is not a bid. It is a fork over decades: keep compounding the go-around, or study a deliberate mountain-plus-lake through-pair. The memorial logic is simple and non-poetic: a name on a working, multi-generation facility outlasts a plaque. Seattle's SR-99 FEIS framed facility life on the order of **≥75 years**; that planning horizon — not inventing Utah numbers — is the memorial test.

What follows expands geography, official process, working analog numbers, valley-by-valley futures, three planning horizons, risks, and a study-language ask. Every hard metric is either a published agency/campus/analog figure or an explicitly labeled Kirk Crossing desktop screen.

2. The fork (Path A vs Path B)

Utah County will grow either way. MAG's long-range plan already assumes a county near **1.3 million** people by mid-century and employment roughly **~300k → ~600k**. Northwest / west-side growth (Lehi–Eagle Mountain–Saratoga Springs) has been the state's epicenter; MAG notes the West Area added **100,000+ people since 2000** and that future growth there “explodes.”

The question is not whether people arrive. The question is whether Cedar Valley and Utah Valley stay sealed apart by mountain and lake, or whether Utah studies a **through corridor** that would aim to join them in practice.

Path A — Keep going around (no Kirk pair)

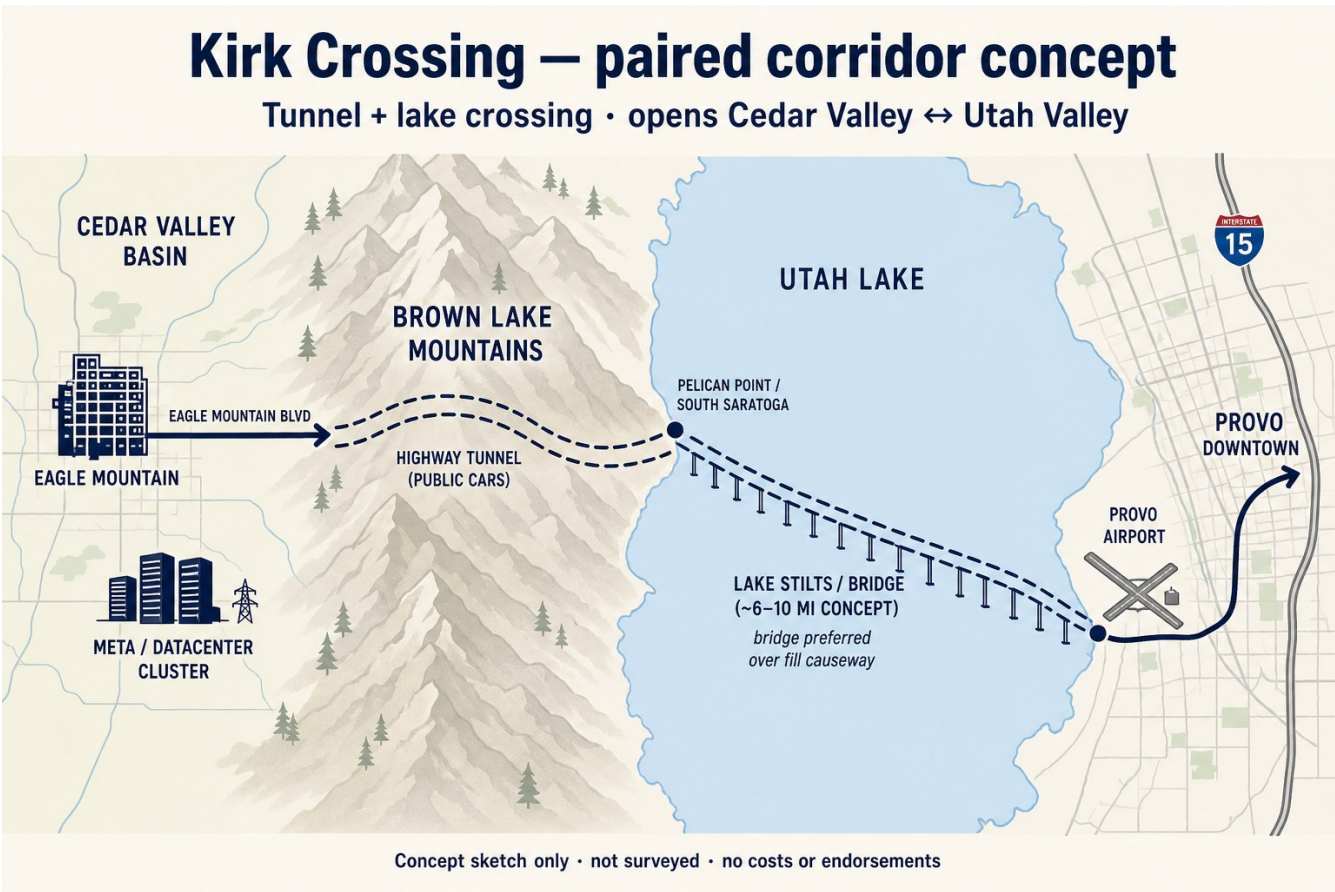
- Cedar Valley keeps land, power, and campus investment. Workers and families still exit north via Pony Express / Pioneer Crossing / I-15, or take long south loops.
- Surface **Lake Mountain Corridor** (ex Mid-Valley Road) may advance as a UDOT-owned arterial (SR-73 ↔ Mountain View Corridor). That fight is real and useful locally. It does **not** by itself create a Provo through-shot across the lake.
- Utah Valley keeps absorbing Front employment density. West-origin trips continue to stack onto Front corridors.
- **Important sharpen:** Path A is **not** “Utah never thinks about a lake crossing.” MAG TransPlan50 already contemplates a **generic** Utah Lake bridge/freeway **after 2040**, location and engineering open. So the fork is not “lake never” vs “lake yes.” It is **go-around + maybe a late, generic lake line** versus **paired mountain tunnel + lake stilts as a deliberate through corridor** aimed at Eagle Mountain center → Provo downtown.

Path B — Build a through corridor (Kirk Crossing concept)

- A public highway tunnel under Lake Mountain, then stilts across Utah Lake toward Provo Airport and downtown.
- Thesis (qualitative until travel-demand and fiscal studies exist): the pair would **aim** to let two basins function more like one labor market — housing and power west of the ridge; Front jobs, schools, specialists, airport, and downtown reachable without a permanent detour culture.
- The road would carry Charlie Kirk's name because the public purpose matches what he spent his life on: connecting people who would otherwise stay sealed off. That is memorial framing, not an engineering proof.

	Path A (no Kirk pair)	Path B (paired concept)
Labor-market story	Housing west, opportunity east — connection by beltway	Thesis: two valleys with a through chord (study required)
Memorial	Name on a moment / plaque	Name on a working, multi-generation path — if built and maintained
Geography cost	Recurrs every decade as volumes rise	Capital paid once; O&M and upgrades continue for the life of the facility
Official lake interest	May still exist as post-2040 MAG line item	Would compete for study space beside PEL / RTP concepts

3. The route + map reference



Sketch only. Not surveyed. No costs or endorsements. Concept geometry from paired-corridor memo and Nathan's 2026-09-08 alignment sketch.

Piece	Concept
Catchment	Pony Express → Eagle Mountain Boulevard (east) into city-center fabric
Lake Mountain tunnel	Twin tubes, public cars/trucks; west portal near EG city center (north of John Hancock Charter School class area per sketch); gentle S-curve generally north of Eagle Mountain Peak; east portal near lakeshore south of denser Saratoga (Pelican Point—class)

Piece	Concept
Utah Lake stilts bridge	About 6–10 miles open water; elevated stilts / pile-bent bridge, not a dirt-fill causeway; SE toward Provo Airport / Center Street corridor
East landing	Thread airport / State Park / marina pinch → arterial into Provo downtown / I-15
Hard rule	Tunnel alone or lake alone still leaves a dead end. The pair is the project.
Not this	Not a shuttle loop. Not a claim that today's surface Lake Mountain Corridor work is wrong — that arterial fight is real; this is the higher-ambition through-pair.

Why the sketch geometry (concept only)

Nathan's hand-drawn twin red lines on satellite imagery (2026-09-08) read as dual highway tubes in a gentle S. That form:

- Ties the west portal to **EG city-center road network** (stated aim).
- Daylights near shore to support a **nearly flat** lake chord (~0–5 ft elevation difference between Pelican Point–class shore ~4,494 ft and Provo Airport vicinity ~4,491 ft).
- Matches **public car highway** mode lock.
- Lengthens the bore vs a pure straight chord under the ridge — a trade for approach fit, not a surveyed alignment.

Screening caveats (not automatic kill factors): west portal in growing residential fabric (ROW / community impacts); east portal near shore (wetland / Redwood / lakeshore constraints before the water structure starts); curve radii must stay design-speed friendly. All of that needs survey and geotech.

Distances (order-of-magnitude — not a travel-demand model)

Path	Approx. distance / time	Notes
Status quo drive (Pioneer Crossing → I-15 S)	~29–32 mi, ~39–45 min light traffic	Peak congestion often worse; MAG narrative has cited ~39 min EG–Provo (2018)
Straight-line (air) EG ↔ Provo	~19 mi	Barrier geometry illustration — not a drive time
Concept lake crossing only	~6–10 mi open water	Does not include tunnel, approaches, or downtown distribution
EG ↔ Saratoga via Pony Express	On order of ~10 road mi / ~25 min typical tool estimate	Straight-line ~6 mi

Trip-time savings from a lake chord are unproven without MAG/UDOT-grade travel-demand modeling. Straight-line geography is not a promise.

4. Memorial / century dedication (earned, not purple)

A name on a sign fades when the news cycle ends. A tunnel and a bridge, maintained for generations, still move people when the people who argued about them are gone.

Charlie Kirk's public life was about pulling people into the same conversation. The fitting memorial is not another marker on a hillside. It is a path that would make Cedar Valley and Utah Valley neighbors in practice —

if Utah chooses to study and build it. Utah's crossing culture — mail routes, then freeways — is the precedent, not the poetry.

Facility-life language from real projects supports multi-decade to multi-generation framing without inventing Utah payback:

- Seattle's **SR-99** Alaskan Way Viaduct Replacement FEIS (Appendix L, Economics) framed operational benefits discussion around facility life of **at least 75 years**, with Bored Tunnel construction on the order of **~5.4–5.5 years** of direct labor.
- Long shallow-lake stilts elsewhere (Lake Pontchartrain Causeway, ASCE Historic Landmark) have already served generations as a *form* class — soft-soil friction piles, not near-bedrock tips.

Soft-soil stilts without near-bedrock are a **known engineering class worldwide** — hard, not imaginary. Utah Lake still needs project-specific geotech, seismic, and environmental work before anyone pours concrete. Memorial rhetoric does not substitute for borings.

Memorial test: Will our grandchildren still use what we named for him?

Public site timing (project brief): vision site targeted around the dedication anniversary window; corridor aspiration **before 2034 Olympics** remains aspirational schedule pressure, not a host commitment.

5. Geography & official process

5.1 Lake Mountain — surface corridor vs highway tunnel

Geography (facts). The Lake Mountains are a roughly **15-mile** eastward-curving range between Cedar Valley (west) and Utah Valley / Utah Lake (east). Crest approaches **~7,690 ft**; valley floors around Eagle Mountain / Saratoga Springs are on the order of **~4,800–5,000+ ft** — implying **~2,000+ ft of relief** on a direct climb. Today's main car path goes **around the north** via Pony Express, SR-73 / Cory B. Wride, Pioneer Crossing (SR-145), Mountain View Corridor (SR-85), Redwood (SR-68), and I-15 — not through the mountain.

Named / low crossings: SR-73 wraps the north; Lake Mountain Communications Road provides N–S tower access on the range; **Soldiers Pass** at the south tip is gravel/dirt multi-use geography — **not** identified in Kirk Crossing screens as the funded preferred regional highway.

Geology (facts for tunnel screening). Bedrock is dominated by Mississippian–Pennsylvanian limestones/sandstones folded into a Lake Mountains syncline (UGS Maps M-201 Saratoga Springs, M-235 Soldiers Pass, M-244 Pelican Point). Hazards include the **East Cedar Valley fault zone**, groundwater anomalies along fault damage (warm-water signatures in published Cedar Valley hydro work), and possible karst/solution in carbonates. **No published highway-tunnel geotechnical investigation for this ridge was found.** Crossing folded Paleozoic carbonates can be tunnelable in principle elsewhere; fault damage, water, and karst are classic cost/kill drivers until investigation exists.

What planners are doing now (surface). Active brand: **Lake Mountain Corridor** (formerly Mid-Valley Road) — future **UDOT-owned** arterial, two lanes each direction, 45–55 mph class, linking **SR-73 to Mountain View Corridor**.

- **Mar 2025** Eagle Mountain city materials: eastbound Mid-Valley concept through **Hidden Valley** “through the mountains” to MVC; then-cited cost band **\$60–100M**; city aspiration of **~6–8 minutes** EG–Saratoga if

built (treat as planning claim, not guaranteed LOS).

- **Jul 30, 2026** Eagle Mountain–Saratoga Springs joint session: ~**15 surface** alignment alternatives; **no tunnel** in the published decision frame. Published surface cost: **\$120–140M (2028\$)** at **8%** max grade; ~**+20%** for UDOT-preferred **6%** (winter plow/safety). Property Reserve / LDS Church favored a more **southern** bent alignment; Saratoga Springs preferred a mountain-close “**blue**” line. **No vote**. Next steps discussed: MAG modeling, study southern bend, TMP amendments, RTP update.
- “Through the mountains” in city materials means **surface / foothill / Hidden Valley** — **not** a bored highway tunnel.

Kirk Crossing tunnel judgment. A ~2–3 mi dual-tube public highway tunnel is a **technically familiar class** worldwide and a **higher-ambition alternative** here. It is **outside** the live Lake Mountain Corridor alternatives list. Schedule vs pre-2034 is aggressive while surface work is already in TMP/RTP conversation.

Eastern receptor network (context). UDOT's NW Utah County package (~**\$1.4B** new projects announced May 2024; area program on order of ~**\$2.1B** through the decade in related reporting) includes Pioneer Crossing flex lanes, MVC extension work, Cory Wride freeway concepts, etc. MVC South Final State Environmental Study (Dec 2025): ~10.7-mile southern extension; first-phase funding anticipation ~**2031** in UDOT public materials. A mountain link's usefulness scales with that east-side handoff — whether surface corridor or tunnel.

Existing highway network (relevant spines)

Facility	Role for EG → eastern Front / Provo
Pony Express Parkway	Primary local E–W spine between Eagle Mountain and Saratoga Springs (north of the mountain mass). City discussions include widening toward 7 lanes in places (Jul 2026 agenda / session summaries).
SR-73 / Cory B. Wride	State route along the north edge; subject of major UDOT freeway conversion concepts (MVC to Ranches Parkway).
Pioneer Crossing (SR-145)	Key E–W connector from Redwood / MVC area toward I-15 (Lehi). Flex-lane / capacity projects funded in NW Utah County package.
Mountain View Corridor (SR-85)	N–S freeway spine on the Saratoga Springs side; southern extension studies and funding packages under way.
SR-68 / Redwood Road	Lakeshore / east-side arterial; congestion and evacuation-redundancy driver for MVC South.
I-15	Primary path into Provo downtown from NW Utah County once traffic reaches the eastern Front.

Any Lake Mountain link (surface or tunnel) that daylights traffic into the Saratoga Springs / MVC / Redwood system still leaves a **remaining eastern Wasatch Front hop** into Provo (I-15 or a future lake crossing). That is why the paired lake stilts piece is not optional for the primary Kirk Crossing trip.

5.2 Utah Lake — MAG after 2040 + PEL

Geography (facts). Utah Lake: remnant of Lake Bonneville; commonly cited ~24 mi long × ~13 mi wide at high stage; average depth ~**9–10.5 ft**; compromise elevation **4,489 ft**. Sole river outlet: Jordan River. Shallow, wide fetch → wind-driven waves and ice matter even though water is shallow.

Open-water chord. Saratoga Springs / Pelican Point → Provo / Orem: roughly **6–10 miles**, alignment-dependent. Recurring public corridors include Pelican Point → Provo Center Street / State Park–Airport area (~8–10 mi in advocacy/news descriptions); historical Utah Crossing Inc. (~2009–2011) marketed **~6 mi Orem 800 N ↔ Saratoga Springs elevated toll bridge — never financed or built.**

Lake bed / seismic (facts). Extreme soft basin fill; Utah Lake Authority–reported (news) **~500 ft without bedrock**; multiple faults under the lake; high liquefaction / lateral-spread near Wasatch Provo segment; soft Lake Bonneville clays create long-term settlement problems for embankments and approaches. BYU ecosystem synthesis cites geologic-scale unconsolidated fill beneath the lake in places — not a thin veneer.

Official planning interest (serious — not a green light).

Item	Status
MAG TransPlan50	Contemplates Utah Lake bridge/freeway after 2040 ; location TBD; further study; design challenges flagged; I-15 landing caution (do not worsen already congested areas)
MAG Highway Maps / Project List (cite list year)	Planning line item e.g. Utah Lake Bridge, Redwood Rd to I-15 — dollars treated as placeholder (see Working numbers)
UDOT + MAG Northern Utah County PEL (2026–2028)	Active agency screen; includes initial assessment of a potential Utah Lake crossing; needs → alternatives → implementation strategy
Historical private toll bridge	Serious interest history; no completed public FEIS/construction program

Screen preference if crossing at all: bridge / stilts over fill causeway on circulation, wetlands, and water-quality grounds (Great Salt Lake railroad causeway is a cautionary **analogy with salinity caveats**, not a template). Causeway is deprioritized as primary public concept. Go-around remains the **only proven near-term capacity path** and the correct baseline for any benefit claim.

East landing pinch points. Provo Municipal Airport, Utah Lake State Park / marina, wetlands, and urban arterials — not an empty shoreline. West landings near Pelican Point sit against Lake Mountain foothills and growing residential fabric.

5.3 Process fit summary

Option	Fits current agency process?
Surface Lake Mountain Corridor	High — live city/MAG/UDOT conversation
Lake Mountain highway tunnel	Low — absent from Jul 2026 alternatives; advocacy from zero
Utah Lake bridge (generic)	Medium — PEL starting; MAG post-2040 concept
Utah Lake fill causeway	Low–hostile on env literature
Go-around upgrades	High — already delivering / programmed

6. Working numbers (analogous and published ranges — not a Kirk Crossing bid)

Until UDOT/MAG-grade engineering exists, Utah still needs **order-of-magnitude** language that is honest. Everything below is **sourced from other projects, agency plans, public official discussion, or labeled Kirk**

Crossing desktop screens. None of it is a stamped estimate for this corridor. Treat bands as **wide**. Prefer: “multi-billion if both pieces build; the lake dominates; no official Kirk Crossing estimate.”

6.1 Capital cost class

Source of number	What it says	How to use it here
Surface Lake Mountain Corridor (Jul 2026 joint session reporting)	About \$120–140M (2028\$) for 8% grade option; ~+20% for flatter UDOT-preferred 6%	Local arterial baseline — not a tunnel
Eagle Mountain Mid-Valley east (city Mar 2025)	\$60–100M earlier stage	Reconcile stages carefully with Jul 2026 band
MAG TransPlan50 / Highway Maps project list (cite list year)	Utah Lake Bridge line item often cited as \$844.6M (planning-year dollars); other MPO list materials may show different placeholders (e.g. higher figures in some maps)	Planning placeholder. Officials later talk multi-billion; do not quote list \$ as a real bid
UDOT Region leadership (public coverage)	Lake crossing would be “ multiples of billions ” (Jeff Lewis, UDOT Region 3 planning manager, quoted Aug 2026)	Best current agency cost class for the lake piece
Utah County Commission discussion (reported)	Figures as high as ~\$15B while debating study funding	Political illustration , not an engineer's stamped total
SR-99 Seattle — WSDOT/FHWA AWW FEIS Summary + Appendix L	Bored Tunnel alternative costs published in FEIS tables (construction + ROW as documented therein); FEIS economics discuss ~5.4–5.5 years Bored Tunnel construction duration and facility life ≥75 years . Broader viaduct replacement program totals differ from Bored Tunnel-only tables — cite document and scope ; do not treat a single round number as “the tunnel.”	Short urban highway tunnel program class — different geology (soft ground / urban), usable as scale check for a ~2–3 mi mountain bore order of magnitude , not a transfer price
CBBT Parallel Thimble Shoal Tunnel	Design-build ~\$756M ; broader budget ~\$1.0–1.1B class (FHWA / Build America profiles)	Marine tunnel piece cost class
Lake Pontchartrain Causeway (ASCE Historic Landmark)	~24 mi twin trestle stilts across a shallow lake; 1956 / 1969 era builds at period dollars (~\$46M / ~\$30M then for the historic spans)	Length and form precedent (friction piles in soft soils). Era dollars are not a modern Utah Lake bid — seismic, soft-column depth, and today's unit costs dominate. No CPI restatement used here.
NW Utah County UDOT package (May 2024 announcement)	~\$1.4B new projects; related reporting ~\$2.1B area through decade	Shows Utah already spends mega-package money on surface freeway/connector programs — still a different league from a lake stilts mega-crossing
MVC South / Cory Wride / 2100 N Lehi (public comps)	On order of ~\$0.45–0.6B each for major freeway pieces	Tier check: large UDOT segments ≠ generation-defining lake crossing

Kirk Crossing desktop screening envelopes (research/cost-and-utah-scale-screen.md — inference only, not PE):

Piece	Very wide desktop envelope	Guardrail
Tunnel alone (~2–3 mi dual tubes concept)	Roughly \$0.8B – \$3B	Rock may help vs SR-99 soft ground — or fault/water may erase that hope
Lake stilts alone (~6–10 mi)	Roughly \$2B – \$10B+	Until PEL / geotech land
Paired program + approaches	Roughly ~\$3B – \$12B+	No preferred midpoint. Public lake talk is multi-billion; ~\$15B appears in study-funding politics only

How to talk money in a meeting:

1. “Multi-billion if both pieces build; lake drives most of it; no official Kirk Crossing estimate.”
2. “Surface Lake Mountain Corridor is ~\$120–140M class (2028\$) — different project.”
3. “MAG’s lake line-item dollars are stale planning placeholders — cite list year; lists may differ.”
4. “Construction supports multi-year trades work; permanent ops are small; we won’t invent a job total until there’s a cost and a Utah I-O run.”
5. “SR-99 FEIS shows ≥75-year facility life framing — that’s the memorial logic, not a Utah payback claim.”

6.2 Jobs and facility life (method + analogs)

Source	Figure	Guardrail
FHWA Employment Impacts page → CEA benchmark	On the order of ~ 13,000 job-years per \$1B federal highway/transit investment (direct + indirect + induced)	National average. Prefer “ jobs supported. ” Rising materials/wages lower jobs per billion over time. Do not multiply by a homemade Kirk Crossing cost
FHWA 2007 highway-specific table	~ 27,800 jobs per \$1B Federal-Aid highway capital (or related historic formulations)	FHWA: obsolete / no longer used. The oft-cited notion that roughly one-third of older FHWA totals are construction-oriented attaches to those older tables , not to the CEA ~13,000 figure
FHWA 1997 historic	~47,500 jobs per \$1B Fed + 20% state	Often misused; superseded
SR-99 FEIS Appendix L (Bored Tunnel economics)	Avg ~ 450 direct construction jobs/year; up to ~ 480/day at peak intensity in FEIS discussion; ~ 2,500 person-years direct construction labor over ~5.4–5.5 years; gross regional employment effects larger under RIMS II with much smaller “net new money” framing; O&M cost increase vs status quo in the low millions \$/year ; facility life ≥75 years	Pattern: temporary build employment vs small permanent ops — for tunnels
Pontchartrain era fabrication (historical narrative)	~ 750 workers at a Mandeville fabrication yard (1950s)	Local manufacturing during build — historical, not a modern I-O study

Source	Figure	Guardrail
Meta Eagle Mountain (published Sep 2026 class announcements)	Meta: >\$3B Utah investment; >1,200 peak construction; >300 permanent; campus buildout class >5M sq ft	Campus employment already arriving without this road — labor-market context only
QTS Eagle Mountain (city / QTS published)	First phase ~5 buildings on ~193 acres; ~\$6B investment language; construction-phase on order of ~2,000–3,000 ; permanent ~100–200 class	Same guardrail — do not attribute to Kirk Crossing
Google / Tract land bank (published)	Google ~300 acres potential DC (construction timeline not confirmed); Tract 668+ acres master-planned parks; RMP path language >400 MW by 2028 in Tract materials	Land / future capacity — not a built schedule; not corridor causation

Website / briefing rule: Never blend construction job-years into a permanent jobs headline. Never invent a Kirk Crossing headcount.

6.3 Travel time and congestion (context, not a promise)

Source	Figure	Guardrail
Feasibility screen / routing tools	Eagle Mountain → Provo today often ~29–32 mi / ~40 min light traffic via Pioneer Crossing–I-15 (air ~19 mi)	Baseline go-around. Lake-chord savings unproven without travel-demand modeling
MAG TransPlan50 narrative	~39 minutes EG–Provo cited in plan narrative (2018-era)	Not a post-crossing forecast
West Davis Corridor FEIS Ch. 8	Delay valued at \$25.80/vehicle-hour ; No-Action delay ~\$172M/year in 2040 study area; action alternatives ~\$47–56M/year savings in 2040	Shows Wasatch Front delay is measured in money — not a Utah Lake BCR
TTI Urban Mobility Report (2025 edition for 2024 data; via reputable summary)	Salt Lake peak-period drivers on order of ~58 hours/year delay (up from ~46 in 2019 per Axios summary)	Metro delay context, not this corridor
Induced demand literature (Duranton & Turner AER 2011; Cervero path analyses; UK DfT guidance)	Lane expansion tends to induce VMT; congestion relief partially competed away; wider economic impacts need separate causal analysis	Supports MAG's own warning that east landings can worsen congested I-15 areas if poorly placed

6.4 Difficulty scores (desktop rubric — appendix-grade)

Kirk Crossing internal equal-weight composite (research/difficulty-rubric-tunnel-vs-bridge.md): Lake Mountain highway tunnel **~62/100**; Utah Lake stilts bridge **~76/100**. **These are screening judgments from desktop research — not a PE stamp, not UDOT scoring, not convertible into dollars.**

Calibration anchors in that memo (for context only): surface Lake Mountain Corridor **~35–45**; Pontchartrain-class shallow stilts **~40–50**; SR-99 soft-ground highway tunnel **~70–75**; Channel / Gotthard national megas **~88–95**. Lake scores harder mainly on length over water, soft foundations + Wasatch liquefaction, and environmental process. Tunnel scores still hard and is **process-orphaned** vs the live surface corridor. Full paired program hardness stacks both pieces.

Weighted toward delivery risk (geo, seismic, env, schedule ×1.5 in that memo): tunnel **~64** · bridge **~80** — still desktop judgment.

7. Cedar Valley deep dive

7.1 Growth and identity

Cedar Valley is no longer only a housing overflow west of Lake Mountain. Eagle Mountain Census population: **43,623** (Apr 1, 2020) → about **60,575** (Jul 1, 2024 estimate) — U.S. Census QuickFacts. City economic-development materials pitch advanced manufacturing, aerospace & defense, life sciences, energy, and industrial land (Pole Canyon 1,000+ acres; Monte Vista 450+ acres) with **345 kV** transmission and a Regional Technology & Industry (RTI) overlay aimed at projects with **≥100 permanent jobs** or **≥100,000 sq ft**. City marketing cites a labor force on the order of **1.1M** within ~1-hour drive — a Front-access claim that depends on real roads.

MAG West Area (Lehi, Eagle Mountain, Saratoga Springs): **+102,000** people since 2000; plan language says future growth “explodes.”

7.2 Campuses as context (not corridor benefits)

Published pipeline (see `research/eagle-mountain-datacenter-pipeline.md`):

- **Meta:** deepening Utah investment (announced figures **>\$3B**); peak construction **>1,200**; permanent **>300**; multi-million sq ft campus class; expansion since 2021 open.
- **QTS (SLC1):** multi-building first phase on ~193 acres; multi-billion investment language; thousands of construction-phase jobs; **~100–200** permanent class.
- **Google:** ~300 acres acquired for **potential** data center — public construction timeline **not** confirmed.
- **Tract:** 668+ acres for master-planned data-center parks; transmission path marketing **>400 MW** by 2028 — treat as site marketing, not a built schedule.

Hard rule: These projects do **not** wait on Kirk Crossing. Do not attribute permanent campus jobs to the road. Use them only as evidence that Cedar Valley already has **land + power + industrial load** — while Front talent, airport, and downtown remain on the far side of mountain and lake.

7.3 Without the paired crossing (no-build for Kirk pair)

Keeps growing. Surface Lake Mountain Corridor may ease local mountain-side traffic between SR-73 and MVC. Workers and families still exit north via Pony Express / Pioneer Crossing / I-15 or long south loops. The basin stays a **satellite with a permanent detour** relative to Provo downtown — even if a generic MAG lake line after 2040 eventually appears without a mountain tunnel.

7.4 With the paired crossing (concept thesis)

Same land and power story, different access story. Front jobs, schools, specialists, airport, and downtown become a **chord**, not only beltway penance. Cedar Valley could act more like a **peer growth valley**, not only overflow housing west of the ridge. That is a **thesis for study**, not a modeled outcome.

7.5 Horizon sketch (Cedar Valley)

Horizon	Without Kirk pair	With pair advancing / built
Next decade	Campuses and rooftops rise; go-around culture; surface arterial politics dominate mountain talk	Study language; portal envelope preservation; construction (if funded) = temporary trades — no invented headcount
Toward 2050	Larger cul-de-sac relative to Front magnet	Peer-basin access thesis — qualitative until models exist
Century	Grandchildren inherit the detour with more people on it	Map carries the dedication if facility is maintained

8. Utah Valley deep dive

8.1 Without the paired crossing

Utah Valley keeps absorbing employment density on the Wasatch Front. West-origin trips still stack onto Front corridors. MAG's long-range plan already contemplates a lake bridge/freeway **after 2040**, location and engineering open; officials have publicly framed any lake crossing as multi-billion class. Without a real through-pair (mountain + lake), that line can remain abstract while I-15 stays the dominant story — and Path A may still include a **generic** late lake concept without unlocking Cedar Valley behind the ridge.

8.2 With the paired crossing

Gains a second west approach toward airport and downtown. **Not magic:** new links redistribute trips; they do not repeal congestion. East landings must be designed honestly or they stress choke points — MAG TransPlan50 itself warns that an I-15 connection must not worsen already congested areas. Facing that in study beats discovering it in gridlock. Academic and planning literature on induced demand (Duranton & Turner; Cervero; DfT wider impacts guidance) reinforces the same caution: do not sell “eliminates I-15 congestion.”

8.3 East-shore constraints that study must own

- Provo Airport aviation surfaces / master plan / dike-flood history.
- Utah Lake State Park, marina, recreation.
- Wetlands, bird use (~226 species cited in ecosystem literature), June sucker recovery sensitivity.
- Urban arterial distribution into downtown / I-15.
- Pollutant pathways (de-icing salts, tire/oil) into a eutrophic lake — bridge decks concentrate discharge; runoff capture is a design fight, not a slogan.

8.4 Together (softened comparison)

	Without Kirk pair	With the pair (thesis)
Labor market	One-sided pattern: housing west, opportunity east	Aim: two valleys connected by a through corridor — requires travel-demand proof
Memorial	Name on a moment	Name on a working multi-generation path — if built
Geography cost	Compounds as volumes rise	Large capital upfront; O&M forever ; upgrades continue

9. Three horizons in more detail

9.1 Next decade

Without: Campuses and rooftops keep rising. Go-around remains culture. Surface arterial politics dominate the mountain conversation. NW Utah County freeway packages (Pioneer, MVC, Cory Wride class) deliver incremental capacity on the existing geometry. PEL steps through needs and alternatives for northern Utah County including an initial lake-crossing screen — conclusions not yet in hand.

With (advancing): Study language and corridor preservation for portals and landings before houses and campuses lock every chord. Later construction, if funded, means years of temporary trades work — **no invented Kirk Crossing headcount**. Today's Eagle Mountain → Provo go-around can be ~40 minutes in light traffic via Pioneer Crossing—I-15; any lake-chord time savings remain **unproven** without travel-demand modeling. Pre-2034 full delivery of **both** tunnel and lake pieces from a cold start is **aggressive / likely unrealistic**; Olympics remain aspiration and statewide mobility context (FrontRunner 2X and peer programs are the published Games-era story — not this corridor).

9.2 Toward 2050

MAG already plans a county near 1.3 million with jobs nearly doubling; the west side carries a heavy share.

Without: Larger cul-de-sac relative to Front magnet; same mountain+lake barrier; possibly a generic post-2040 lake line still fighting location, design, and cost class without a Cedar Valley tunnel unlock.

With: Peer-basin thesis. Qualitative until travel-demand and fiscal studies exist — say that out loud. East landing design quality decides whether the corridor helps or harms congested Front nodes.

9.3 Century scale

Without: Grandchildren inherit the detour with more people on it.

With: The map itself carries the dedication. Repair, upgrade, keep driving it. That is how a memorial outlasts a statue — **if** Utah builds and maintains the asset. Facility-life analogs (≥75 years in SR-99 FEIS framing; multi-generation stilts elsewhere) support the rhetorical register of “century-class asset” without inventing NPV or “pays for itself over 100 years.”

10. Risks, environmental / seismic, stilts vs causeway

10.1 Lake Mountain tunnel risks

- No local published highway-tunnel geotech; ECVFZ portal and approach rupture risk; groundwater / warm fault-related water; possible karst in carbonates.
- Fire / life safety / ventilation for public cars (ops score is tunnel-specific tax in desktop rubric).
- Process orphan: absent from Jul 2026 surface alternatives — needs sponsor and concept study to enter formal comparison.
- Spoil, portal ROW in growing neighborhoods, schedule risk vs Olympics aspiration.

10.2 Utah Lake stilts risks

- Soft column depth (Authority-reported ~500 ft without bedrock in news) may imply much longer piles than Pontchartrain's denser strata often cited ~65–90 ft below water in design literature — **site borings decide**.
- Liquefaction / lateral spread + faults under the lake + ice/wind/wave on a long structure.
- Environmental process: wetlands, birds, June sucker ESA consultation risk, 404/401 if dredge/fill, NEPA if federal funds/actions, public trust / sovereign lakebed ownership.
- East landing airport / park / marina pinch.
- De-icing and pollutant deposition into a eutrophic, HAB-prone lake.
- Schedule: even with PEL 2026–28, full lake highway EIS → build rarely fits one Olympic cycle from cold start.

Regulatory sensitivity (facts from Phase 2 screen)

- Lakebed is **state sovereign land** (Utah Division of Forestry, Fire & State Lands / public trust doctrine); U.S. Supreme Court affirmed Utah's title (*Utah Div. of State Lands v. United States*, 1987).
- Major dredge/fill → **USACE 404** + state **401** water-quality certification likely.
- Federal funding or major federal action → **NEPA** (EA/EIS).
- Threatened **June sucker** → ESA consultation risk.
- Parallel political sensitivity: artificial-island / mega-dredge proposals (Lake Restoration Solutions era) already mobilized strong scientific and civic opposition — any lake highway will inherit that scrutiny.
- Utah Lake is **eutrophic / hypereutrophic**, turbid, slightly saline/alkaline; harmful algal blooms occur, with hotspots especially on the east shore and Provo Bay near wastewater influence. Resilience factors cited by BYU researchers include turbidity limiting light, calcite scavenging nutrients, and shallow well-mixed bathymetry limiting hypoxia — scientists still warn shallow lakes are sensitive even to “open” structures.
- Wetlands support on the order of **~226 bird species**; Pacific Flyway stopover importance; Utah Lake Wetland Preserve (CUPCA mitigation) on the south end.
- Sole outlet **Jordan River** links Utah Lake management to downstream Jordan River / Great Salt Lake concerns.

Inference: Environmental process alone can dominate schedule for bridge or causeway; **causeway starts with a steeper climb**. Bridge environmental burdens remain material (pollutant deposition, construction turbidity, bird strike / lakescape / recreation impacts, possible local change to mixing and shading).

10.3 Soft-soil stilts are feasible *in class*

Methods used worldwide when bedrock is deep or missing (research/soft-soil-bridge-precedents.md):

Method	Role
Friction piles	Shaft friction with surrounding soil
Driven prestressed concrete cylinder piles	Pontchartrain-class trestle stilts
Driven steel tubular piles	Soft rivers/bays; seismic/scour detailing (Padma class)
Bored piles / drilled shafts	Deep soft soil; skin/base grouting options

Method	Role
Pile groups + caps	Nearly all highway lake/bay trestles

Encouraging: “No near-surface bedrock” is not a unique show-stopper. Shallow water (Utah Lake ~9–10.5 ft avg) is closer to Pontchartrain *construction conditions* than to deep-ocean bridges.

Harder than Pontchartrain (must study): thicker soft column, Wasatch seismicity + liquefaction, faults under lake, ice/wind/wave, de-icing into eutrophic water, env process. Padma Bridge literature (bedrock kilometers deep; long steel tubular friction piles; skin/base grouting) proves no-bedrock is solvable in extreme soft ground — **class proof, not a Utah Lake design or cost transfer.**

10.4 Stilts / bridge vs causeway vs go-around

Criterion	Bridge / stilts	Fill causeway	Go-around (baseline)
Circulation / water quality	Preferable if open spans	High risk of cutting cells (GSL railroad analogy, salinity caveats)	No new lake barrier
Wetlands / birds / permits	Hard	Harder (fill = regulated impact)	Lower in-lake footprint
Seismic / soft soils	Hard (deep piles)	Hard (embankment failure / settlement)	Standard Front practice (still non-trivial)
Screening preference	If crossing at all → bridge	Avoid as primary concept	Only proven near-term path
Schedule to 2034	Aggressive	Same or worse	Highest for incremental wins

10.5 Combined program risks

Sequencing: mountain without lake (or lake without mountain) fails Eagle Mountain center → Provo downtown. Funding and NEPA segmentation rules matter. O&M is a permanent second bill (tunnel systems + long bridge inspection). Induced development employment — if any — can lag years/decades and must not double-count MAG’s already-forecast growth as “created by” the corridor.

10A. Alternative sets and sequencing (from feasibility screens)

Mountain alternatives (Phase 1 screen)

Option	Planning status	Screen judgment
A. Highway tunnel (~2–3 mi concept)	Not in published UDOT/MAG/city corridor decisions found in Phase 1 screen	Technically familiar <i>class</i> elsewhere; unstudied here . No published tunnel cost, portal survey, or UDOT endorsement. Geology (Paleozoic limestones + ECVFZ + groundwater) needs dedicated investigation. Schedule to pre-2034 is aggressive / high-risk relative to surface path already in regional process.
B. Surface Lake Mountain Corridor (south–mid)	Active baseline in city + MAG + UDOT conversation	Closest thing to an adopted planning direction. Grade, winter ops, property, and alignment politics are the live issues — not whether a tunnel should replace the surface corridor.

Option	Planning status	Screen judgment
C. Other Mid-Valley / Lake Mountain variants	Multiple documented surface variants	MAG RTP Mid Valley Rd line items (e.g. H34, H95 class); Hidden Valley mountain crossing concepts; mountain-hugging vs bent/southern; north-side existing arterials; far-south Soldiers Pass dirt-road geography (existing low pass, not a funded regional highway). No documented public-car highway tunnel alternative in MAG/UDOT materials reviewed.
D. North-around existing	Works today	Pony Express / SR-73 / Pioneer Crossing / MVC — subject of big UDOT packages; does not create the memorial “crossing through.”

Rejected by project lock: Boring Loop–style shuttles / dedicated people-mover fleets (does not move general public car traffic EG center → Provo DT). Boring Company as optional later **constructor** for highway-class tubes remains a propose-first conversation only — never claimed as partner.

Lake alternatives (Phase 2 screen)

Option	What it is	Screening judgment
A. Bridge / stilts	Elevated highway structure spanning open lake	Conceptually preferred over fill for hydrology/circulation; still faces extreme foundation, seismic, maintenance, and environmental process risk
B. Causeway	Embankment / fill with limited openings	Higher risk of killing lake circulation, isolating wetlands, and worsening water-quality / algal outcomes
C. Prior proposals	MAG long-range concepts; UDOT Northern Utah County PEL; private Utah Crossing Inc. (~2009–2011)	Serious prior interest; no built crossing; no completed public FEIS/construction program
D. Status quo go-around	North via Pioneer Crossing / Point of the Mountain / I-15; or south via Santaquin–Goshen / I-15	Baseline that works today

Combined success-factor matrix (qualitative)

Factor	Mountain tunnel	Mountain surface	Lake bridge	Lake causeway	Go-around only
Fits current agency process	Low	High	Medium (PEL starting)	Low–hostile	High
Geology known enough to design	No	Partial	No (need borings)	No	Yes
Env process risk	High	Medium	Very high	Extreme	Lower (no new lake footprint)
Delivers EG → Provo DT alone	No	No	No	No	Yes (today)
Memorial / narrative distinctiveness	High	Medium	High	Low	Low
Schedule credibility vs 2034 aspiration	Low	Medium	Low	Low	Highest for incremental wins

Recommended working path (from combined feasibility screen)

1. Treat surface Lake Mountain Corridor as the **official baseline** to track and, if desired, influence (southern vs blue; 6% vs 8%).
2. Keep highway tunnel as a formal Kirk Crossing alternative only if willing to fund a **concept geotech / portal memo** — still no invented costs.
3. Lake: **bridge > causeway**; align messaging with UDOT/MAG PEL rather than inventing a parallel study claim.
4. Do not sell minute-count guarantees until MAG/UDOT model runs exist.
5. Sequence: mountain link (surface or tunnel) does not replace lake strategy; full corridor = package. Near-term mobility = go-around upgrades already in UDOT pipeline.

Chronology (selected — lake interest)

- Mid/late 20th c.: CUP-era concepts to dike bays / shrink surface area for evaporation control (context for “modify the lake” thinking).
- **2009–2011**: Utah Crossing Inc. private toll bridge; legislative/Transportation Commission oversight rules; project stalls / never built.
- **2019+**: Local press notes lake bridge appearing in long-range transportation conversation.
- **2024–2025**: NW Utah County UDOT mega-package; Eagle Mountain Mid-Valley city articles; MAG UPWP feasibility/landing study lines.
- **2025–2026**: MAG 2055 RTP update window; FOX 13 and others report UDOT feasibility interest; Utah Lake Authority bedrock/fault statement in coverage; Conserve Utah Valley campaign against bridge/causeway/Provo Bay freeway concepts.
- **Jul 30, 2026**: Joint Eagle Mountain–Saratoga Springs Lake Mountain Corridor session (~15 surface alignments; no tunnel).
- **2026–2028**: Northern Utah County PEL timeline (needs → alternatives → implementation strategy).

10B. Utah scale and grandeur (desktop tiering — not a bid)

From research/cost-and-utah-scale-screen.md (inference labeled):

Tier	Utah examples	Ballpark
1. Local / arterial	City widenings, signals	tens of \$M
2. Large UDOT piece	Pioneer flex lanes class; many canyon jobs	~\$50–200M
3. Mega freeway segment	MVC South (~\$0.55B); 2100 N (~\$0.6B); Cory Wride (~\$0.46B)	~ \$0.5B each
4. Regional package	NW Utah County slate	~ \$1.4–2.1B this decade
5. Generation-defining civil works	Rare in Utah highways	multi-\$B single concept

Kirk Crossing paired corridor, if both pieces build, lands in **Tier 5** conversation — above any *single* project in the current NW Utah County freeway program, and in the same civic conversation as “once-in-a-generation” builds (lake bridge alone is already talked about that way). Compared to surface-only Lake Mountain Corridor (~\$120–140M class), a full tunnel+lake program is a **different league** — do not conflate them in public copy.

Grandeur here means mobility + place-shaping ambition (rewiring two valleys), not slogan volume. Comparable *narrative* weight to Point of the Mountain remake / long-range lake crossing dreams; larger *physical* ambition than a typical UDOT corridor extension.

10C. Induced development and fiscal honesty

Published research warns against simple “build it and tax base appears” claims:

- **Duranton & Turner (AER 2011)**: lane-km expansion tends to induce VMT; congestion relief is partially competed away.
- **Cervero** path analyses: freeway capacity can reshape land use and generate additional travel; causality runs both ways.
- **UK DfT / wider economic impacts guidance**: transport may affect output, employment, agglomeration — but these require **separate causal analysis**; induced traffic is not itself proof of net economic benefit.
- **MAG TransPlan50** warns a lake freeway's **I-15 landing** could worsen congestion if poorly placed.

Honest framing: New corridors *can* rearrange where growth occurs and *may* expand the feasible industrial shed west of Lake Mountain — **but** growth already in MAG forecasts cannot be double-counted as “created by” Kirk Crossing, and congestion benefits require **travel-demand modeling** that does not yet exist for this concept. Eagle Mountain TIF/CRA tools and RTI job thresholds are local development instruments — the crossing does not automatically annex tax base; datacenter tax treatment is negotiated and contested statewide — don't overclaim.

Allowed rhetorical register (from jobs memo): “generation-defining public works”; “multi-decade capital asset”; “facilities of this class are planned to serve many decades”; “fiscal effects, if any, would unfold over the same multi-decade horizon as Utah County's growth forecasts — and must be studied, not asserted.”

Disallowed: “pays for itself over 100 years”; any implied BCR, IRR, or tax-recapture percentage; converting facility life into a repayment schedule.

10D. Political interest map (sourced hooks + guardrails)

Political interest	Sourced hook	Guardrail
Utah-first jobs	Construction peaks on megaprojects; FHWA/CEA job-support factors; Meta/QTS already hiring Utah construction & ops	Don't invent Kirk Crossing headcounts; prefer “Utah trades and suppliers would compete for temporary work”
Local contractors	Federal-aid projects trigger Buy America / domestic preference regimes	Preference ≠ guaranteed local award share
Tax base expansion	Eagle Mountain industrial tools; campuses; RTI thresholds	Crossing does not automatically create tax base; don't overclaim
West-side unlock	MAG west-area growth; limited east–west links; TransPlan50 lake bridge after 2040	Align with, don't overwrite, surface Lake Mountain Corridor work

Political interest	Sourced hook	Guardrail
Olympics 2034 mobility	State/UTA/UDOT Games-era projects (FrontRunner 2X, etc.)	Aspiration/timing only — no Games funding claim for Kirk Crossing
Memorial coalition	Dedication to public connection; Utah crossing culture	Not a substitute for engineering or funding

10E. Open questions that study must answer

From Phase 1 / Phase 2 screens (selected):

1. What will UDOT's Northern Utah County PEL conclude on geotechnical and economic feasibility of any Utah Lake crossing (implementation strategy into ~2028)?
2. Which MAG 2055 RTP alignments (main-lake bridge vs north-shore causeway vs Provo Bay freeway) survive fiscal constraint and public comment?
3. Site-specific borings on any preferred chord: depth to competent bearing layers, liquefaction profiles, fault crossings — none published as a crossing design dataset.
4. Travel-demand truth: minutes saved EG center → Provo DT for tunnel+bridge vs Pioneer Crossing / I-15 under 2030–2050 growth — needs model runs, not slogans.
5. East landing aviation constraints: FAA Part 77 surfaces, airport master plan, dike/flood constraints at Provo Airport.
6. Federalization path: federal funds (NEPA) vs state/private path (still likely 404/ESA)?
7. Ice and wind design basis for an 8–10 mi shallow-lake structure — Utah-specific criteria vs coastal bridge practice.
8. Subsidence / freeboard over multi-decade structure life (expert qualitative concern exists; design numbers do not).
9. Sequencing with Lake Mountain link: bridge-first vs tunnel-first vs concurrent — funding and NEPA segmentation.
10. Ownership & public trust: lease vs easement across sovereign lakebed; bonding for removal (issue raised in historical private-proposal coverage).
11. Reconcile surface cost bands: \$60–100M (Mar 2025 city) vs \$120–140M @ 8% (Jul 2026, 2028\$) — scope, year dollars, laneage, contingency.
12. Soldiers Pass vs Mid-Valley south-bent: does “south of Lake Mountain” mean land-reserve south of Hidden Valley or a true Soldiers Pass bypass?
13. Mineral / BLM / SITLA constraints on Lake Mountain ROWs (rare-earth interest reporting exists as context — not evaluated as a kill factor here).

11. What we will not claim

- No **official** Kirk Crossing cost, BCR, IRR, job total, payroll, GDP, tax-revenue, or minute savings — only labeled analog ranges and desktop screens above
- No UDOT / MAG / city / Olympic endorsement or funding
- No “pays for itself” slogan or 100-year ROI
- No attribution of Meta/QTS (or any campus) permanent jobs to this corridor
- No erasure of the live surface Lake Mountain Corridor process

- No claim that TransPlan50 lake line-item dollars are a current engineer's estimate
- No conversion of difficulty rubric scores into dollars
- No guarantee of Utah-first contractor share (Buy America norms may apply to federal-aid work — preference ≠ guaranteed local award)
- Olympics 2034 is timing context for statewide mobility seriousness — not a Games project claim
- No claim that a lake crossing **eliminates** I-15 congestion

Lake crossing is the harder engineering and environmental piece. Mountain tunnel is unstudied here as a highway bore while surface alignments are in active local talk. Both truths can sit in the same brief.

12. Asks for study language (not theater)

1. Include a **Lake Mountain highway tunnel + Utah Lake stilts** paired option toward Provo Airport / downtown in MAG/UDOT screens — **beside** surface Mid-Valley / Lake Mountain Corridor and go-around baselines.
 2. Preserve plausible portal and landing envelopes before houses and campuses lock every chord.
 3. Sequence as a pair even if money arrives in phases. Mountain without lake (or lake without mountain) fails Eagle Mountain center → Provo downtown.
 4. Align messaging with UDOT/MAG **Northern Utah County PEL** and MAG RTP updates — track, don't invent a parallel "official" study claim.
 5. When appropriated: concept geotech / portal siting (UGS maps + LiDAR + ECVFZ + hydrogeology); lake pier borings; travel-demand runs EG center → Provo DT under tunnel+bridge vs Pioneer/I-15; Utah-specific employment/fiscal I-O — **from professionals**, not invented here.
 6. Keep Charlie's name tied to **public connection** and public cars — not a private shuttle story.
 7. Prefer stilts/bridge language over fill causeway in any public concept set.
-

13. Bottom line

Utah County will grow either way. The only durable question is whether Cedar Valley and Utah Valley meet through a mountain and a lake as a deliberate through corridor — or spend the next century mostly going around them, even if a generic late lake line remains on a long-range map.

If Utah builds the pair, the memorial is the road. If Utah does not, the memorial argument still stands as a choice about barriers — not as a fake funded project.

Sources (primary where possible)

Growth and official lake planning

- Mountainland Association of Governments, *TransPlan50* (RTP):
<https://magutah.gov/static/files/transportation/TransPlan50/TransPlan50.pdf> — Utah County ~1.3M by 2050; employment nearly doubling; Utah Lake bridge after 2040; location/design open; I-15 landing caution.

- MAG Highway Maps and Project List (cite year PDF): <https://magutah.gov/files/transportation/TransPlan50/HighwayMapsandProjectList2025.pdf> — Utah Lake Bridge Redwood Rd to I-15 planning line item — treat dollars as **placeholder**, not a bid; other list materials may differ.
- MAG 2055 RTP portal: <https://magutah.gov/2055rtp/>
- MAG UPWP materials (Utah Lake Bridge Feasibility/Landing Study line items in FY excerpts): [https://magutah.org/static/files/transportation/UPWP-2025%20\(1\).pdf](https://magutah.org/static/files/transportation/UPWP-2025%20(1).pdf)

Cost class and process (not Kirk Crossing estimates)

- Local reporting / Eagle Mountain–Saratoga Springs joint session (Jul 30, 2026): Lake Mountain Corridor surface ~\$120–140M (2028\$) — arterial baseline only. Agenda stream: [https://eaglemountainut.api.civicclerk.com/v1/Meetings/GetMeetingFileStream\(fileId=2878,plainText=false\)](https://eaglemountainut.api.civicclerk.com/v1/Meetings/GetMeetingFileStream(fileId=2878,plainText=false)) · session summaries (verify vs official record): OpenUtah / ZoneWire meeting pages.
- Eagle Mountain City — Mid Valley Road (Mar 6, 2025): <https://eaglemountain.gov/mid-valley-road-projects-key-to-easing-traffic-congestion/>
- Public UDOT Region / Commission coverage (date the article when citing): lake crossing “multiples of billions” (Jeff Lewis, UDOT Region 3 planning manager, quoted Aug 2026); higher figures in study-funding debate = illustration only. Example coverage thread: City Weekly UDOT Commission reporting — <https://www.cityweekly.net/news/udot-asked-and-utah-answered-more-transit-better-bike-lanes-less-road-widening-1a397e27>
- UDOT — NW Utah County ~\$1.4B projects (May 20, 2024): <https://connect.udot.utah.gov/2024/05/20/state-greenlights-nearly-1-4-billion-in-new-udot-projects-for-northwest-utah-county/>
- UDOT PublicInput — Mountain View Corridor South: <https://udotinput.utah.gov/mvcsouth>
- UDOT/MAG Northern Utah County PEL: <https://udotinput.utah.gov/x86544>
- WSDOT/FHWA Alaskan Way Viaduct FEIS Summary + Appendix L: <https://wsdot.wa.gov/sites/default/files/2021-05/AWV-PDF-FEIS-Summary.pdf> · <https://wsdot.wa.gov/sites/default/files/2021-05/AWV-PDF-FEIS-AppendixL.pdf> — Bored Tunnel costs as published in FEIS tables (cite scope); facility life ≥75 years; temporary construction employment pattern.
- FHWA — Parallel Thimble Shoal Tunnel project profile: https://www.fhwa.dot.gov/ipd/project_profiles/va_parallel_thimble_shoal_tunnel.aspx
- USDOT Build America — Parallel Thimble Shoal Tunnel: <https://www.transportation.gov/buildamerica/projects/parallel-thimble-shoal-tunnel-project>

Jobs method

- FHWA, Employment Impacts of Highway Infrastructure Investment: <https://www.fhwa.dot.gov/policy/otps/pubs/impacts/> — CEA ~13,000 job-years per \$1B; older FHWA ~27,800 obsolete / no longer used.

Soft-soil stilts class

- ASCE Historic Landmark — Lake Pontchartrain Causeway: <https://www.asce.org/about-civil-engineering/history-and-heritage/historic-landmarks/lake-pontchartrain-causeway-bridge>
- Padma Bridge foundation literature (IABSE/AECOM) — friction piles where bedrock is unreachable (class proof, not Utah Lake design).

Congestion context (other corridors)

- UDOT West Davis Corridor FEIS, economics chapter: https://westdavis.udot.utah.gov/wp-content/uploads/2019/10/WDC_FEIS_08_Economic.pdf — delay valuation method; not a Utah Lake BCR.
- TTI Urban Mobility Report hub: <https://mobility.tamu.edu/umr/report/> — Salt Lake peak delay hours as metro context (cite edition).
- Axios SLC summary of TTI 2025 hours: <https://www.axios.com/local/salt-lake-city/2025/10/30/utah-commute-time-traffic-pandemic-increase>
- Duranton & Turner, AER 2011: <https://www.aeaweb.org/articles?id=10.1257/aer.101.6.2616>
- Cervero, “Road Expansion, Urban Growth, and Induced Travel” (JAPA): <https://doi.org/10.1080/01944360308976303>

Geology / lake science (selected)

- UGS Map 201 — Saratoga Springs 7.5': <https://ugspub.nr.utah.gov/publications/geologicmaps/7-5quadangles/m-201.pdf>
- UGS Map M-235 — Soldiers Pass: <https://utahmapstore.com/products/m-235>
- UGS Quaternary fault mapping slides (ECVFZ): https://geology.utah.gov/docs/pdf/UQFPWG-2020_Presentations.pdf
- USGS WRIR 96-4236 — Lincoln Point–Bird Island seismic reflection: <https://doi.org/10.3133/wri964236>
- BYU Plant & Wildlife Sciences — Utah Lake ecosystem FAQs: <https://pws.byu.edu/utah-lake/about-utah-lake>
- Utah DEQ — Great Salt Lake railroad causeway (analogy): <https://deq.utah.gov/water-quality/railroad-causeway>
- FOX 13 — lake bridge feasibility / Authority bedrock-fault statement: <https://www.fox13now.com/news/local-news/utah-county/is-a-bridge-over-utah-lake-simply-a-bridge-too-far>
- Utah Lake Authority — Bridge FAQ: <https://utahlake.gov/bridge/>

Campus pipeline (context only — not caused by this corridor)

- Meta Data Centers Utah announcements: <https://datacenters.atmeta.com/2026/09/deepening-our-investment-in-eagle-mountain-utah/>
- Eagle Mountain City — QTS construction / job ranges: <https://eaglemountain.gov/construction-restarts-on-qts-data-center-in-eagle-mountain/>
- Eagle Mountain — Industrial Development: <https://eaglemountain.gov/eagle-mountain-economic-development/industrial-development/>
- U.S. Census QuickFacts — Eagle Mountain city, Utah: <https://www.census.gov/quickfacts/eaglemountaincityutah>

Olympics timing context (not funding)

- FrontRunner 2X program: <http://frontrunner2x.utah.gov/>

Historical lake-crossing proposals (not Kirk Crossing)

- Deseret News — 2009 private toll-bridge proposal: <https://www.deseret.com/2009/9/17/20340923/group-proposes-bridge-over-utah-lake/>

- Deseret News — 2009 environmental concerns:
<https://www.deseret.com/2009/11/22/20353842/environmental-concerns-about-utah-lake-bridge-discussed/>
- Conserve Utah Valley — lake bridge critique compilation: <https://conserveutahvalley.org/do-we-need-a-utah-lake-bridge/>

Kirk Crossing desktop research (not agency)

- kirk-crossing/FEASIBILITY_SCREEN.md
- kirk-crossing/EXEC_SUMMARY.md
- kirk-crossing/BRIEF.md
- kirk-crossing/MASTER_PLAN.md
- kirk-crossing/research/jobs-and-utah-economy.md
- kirk-crossing/research/phase1-lake-mountain.md
- kirk-crossing/research/phase2-utah-lake.md
- kirk-crossing/research/soft-soil-bridge-precedents.md
- kirk-crossing/research/difficulty-rubric-tunnel-vs-bridge.md (scores = screening judgment)
- kirk-crossing/research/cost-and-utah-scale-screen.md (wide envelopes = inference)
- kirk-crossing/research/paired-corridor-lake-path.md
- kirk-crossing/research/concept-alignment-sketch-2026-09-08.md
- kirk-crossing/research/eagle-mountain-datacenter-pipeline.md
- kirk-crossing/research/white-paper-source-pack.md (Fable adversarial pack)

Map: charliekirkcrossing.com/#corridor · **One-pager:** charliekirkcrossing.com/assets/kirk-crossing-one-pager.pdf

Basis: MAG TransPlan50; Kirk Crossing feasibility screen; jobs framing memo; cost & Utah-scale screen; soft-soil precedents; difficulty rubric; published campus pipeline (context only). Project kirk-crossing.

Research packs (this project)

- kirk-crossing/research/white-paper-source-pack.md (Fable)
- kirk-crossing/research/white-paper-source-pack-sol.md (Sol)
- kirk-crossing/research/white-paper-expansion-notes.md