

BRECK ATHLETIC COMPLEX — BIG BEND, WI

Road Infrastructure Cost Estimate — Revised Analysis

Incorporating: Road Widths | Crowd & Egress Analysis | Town of Vernon Ordinances | Waukesha County Standards | Hwy 164 Industrial Corridor Context

May 2026 | Prepared for: Big Bend Planning Committee / Breck Sports Complex Stakeholders

1. Existing Road Conditions vs. Required Standards

The roads serving the Breck site were photographed and mapped. Image analysis reveals Town Line Road is a narrow two-lane rural road with no paved shoulders, consistent with a pre-commercial rural classification. The aerial view confirms all four surrounding roads are similar in character. These must be evaluated against the Town of Vernon's adopted road construction standards and Waukesha County access requirements.

Road Segment	Est. Existing Pavement Width	Est. Existing ROW	Vernon Ord. Minimum (Residential)	Vernon Ord. Required (Bus./Mfg.)	Gap / Deficiency
Highway 164 (west)	~24 ft	~66 ft	24–26 ft paved	N/A (WisDOT standard)	Needs dedicated turn lanes; no bypass lane currently at site access
Town Line Rd (north)	~20–22 ft	~33 ft	24–26 ft paved / 66 ft ROW	72–80 ft ROW required	DEFICIENT: Pavement 2–6 ft narrow; ROW must expand 39–47 ft for commercial classification
Skyline Ave (south)	~20–22 ft	~33 ft	24–26 ft paved / 66 ft ROW	72–80 ft ROW required	DEFICIENT: Same deficiencies as Town Line; ROW acquisition needed
Big Bend Drive (east)	~18–20 ft	~33 ft	24–26 ft paved / 66 ft ROW	72–80 ft ROW required	SEVERELY DEFICIENT: Narrowest segment; parking ordinance already restricts it near Town Fire Pond

Sources: Town of Vernon Code §200-34 (Roadways and Public Lands); Waukesha County Chapter 15 Public Works Ordinance; field observation from photographs.

2. Governing Ordinance Standards

Town of Vernon Road Specifications (§200-34)

The Town of Vernon's land division and development control ordinances establish two tiers of road construction standards:

Standard	Residential District Roads	Business & Manufacturing District Roads
Pavement Width	24–26 feet	22–24 feet (major through streets: 24 ft minimum)
Right-of-Way Width	66 feet (standard)	72–80 feet (expanded for

		commercial/industrial traffic)
Shoulder Width	Minimum 6 feet each side	Minimum 6 feet each side (same)
Pavement Depth	Min. 5 inches total (2.5" base + 2.5" surface)	Min. 5 inches total (same); developer bears cost
Base Course Depth	Minimum 12 inches compacted	Minimum 12 inches compacted (same)
Intersection Taper	5x50 ft tapers, 40 ft minimum radius	5x50 ft tapers, 40 ft minimum radius (same)
Key Implication	Town Line Rd and Skyline Ave currently fall below standard	If Breck site is classified as commercial/institutional, roads must meet this higher standard — meaning ROW expansion of 6–14 ft on each side of centerline will be required from adjacent landowners

Waukesha County Chapter 15 — Access & Highway Width Rules

- The County's Established Street and Highway Width Map governs right-of-way widths countywide. Amendments require County Board approval (§15-27).
- Access Point permits are required from Waukesha County Public Works for any new driveway or intersection onto a County Trunk Highway (§15-53).
- A bypass lane is mandated for any 'T' intersection when adjacent county highway traffic exceeds 2,500 vehicles per day and ordered by the engineer (§15-54(e)).
- Commercial/industrial access points serving more than 25,000 sq. ft. must meet Type A, B, or D intersection design — the highest standard (§15-54(c)).
- Sight distance requirements: developments of more than 4 units or any commercial use must meet AASHTO Design Guide Curve B-2 — significantly longer than the simple stopping sight distance for low-density residential (§15-55(2)).
- Minimum 500 ft separation required between access points and any federal, state, county trunk highway, or public road intersection (§15-55(3)).
- Waukesha County specifies a minimum pavement section for access to county highways: 6 inches HMA Pavement Type 4 MT 58-28S on 12 inches of base (Chapter 15 access permit requirements).

CRITICAL FINDING: The Breck complex, at 150.47 acres with 2,100–3,000 peak visitors and commercial development (hotel, restaurant, retail, medical), will almost certainly be classified as a commercial/institutional land use triggering the highest access design standards under both Town of Vernon and Waukesha County ordinances. This means ROW expansion, bypass lanes, and Type A/B/D intersection designs are not optional — they are mandated.

3. Crowd Expectations & Traffic Egress Analysis

Traffic Generation Estimates

The sales brochure projects: (a) Peak tournament weekends: 2,100–3,000 people over 26–30 weekends/year; (b) Weekly league/training: 1,300–1,800 people/week, Monday–Thursday. These translate to the following vehicle trip generation, assuming an average vehicle occupancy of 3.0 persons (families with children typical of youth sports):

Scenario	People	Estimated Vehicles	Peak Hour Vehicles (25% rule)	Implication
Tournament Weekend Peak	3,000	~1,000	~250 vehicles/hr	Equivalent to a medium big-box retail center; exceeds capacity of current 2-lane roads
Tournament Weekend Low	2,100	~700	~175 vehicles/hr	Still well above rural road capacity

				thresholds; signals and bypass lanes needed
Weekly League/Training	1,800 (peak)	~600	~150 vehicles/hr	Ongoing daily load Mon–Thu; road infrastructure must handle this as baseline, not just special events
Commercial Development (hotel, restaurant, retail)	TBD	Adds 500–1,500 trips/day	50–150 additional peak hr	Cumulative load on Hwy 164 may reach 12,000–14,000 AADT — approaching re-classification thresholds

Egress Chokepoints & Design Implications

From the site plan, the complex has entry/exit points accessible primarily via Highway 164 (west) and Town Line Road (north), with limited Skyline Avenue (south) access. The following egress problems are anticipated:

- Simultaneous mass egress: When tournament games conclude, 700–1,000 vehicles attempt to exit within a 20–30 minute window. Without multiple egress lanes and traffic management, queues will back up onto Hwy 164, which is a state highway — creating a safety and legal liability issue under WisDOT rules.
- Highway 164 left-turn conflict: Vehicles exiting to go north (toward I-43 and Milwaukee) must make an unprotected left across Hwy 164. At current traffic volumes of ~10,300 AADT on Hwy 164, this is already challenging. Adding 250 peak vehicles per hour worsens this dramatically. A dedicated left-turn signal phase or roundabout is functionally required.
- Town Line Road width constraint: At an estimated 20–22 ft pavement width, Town Line Road cannot safely accommodate two lanes of simultaneous egress plus any oncoming traffic. The effective capacity is well below 250 vehicles/hour in each direction.
- Big Bend Drive parking prohibition: The Town of Vernon's traffic ordinance (§290) already restricts parking on Big Bend Drive near the Town Fire Pond. This road cannot serve as a primary egress route.
- No pedestrian infrastructure: Current roads have no sidewalks or crossing infrastructure. With families and children crossing to parking areas, crosswalk improvements, pedestrian signals, and potentially marked paths are required under any development approval.
- Emergency vehicle access: Multiple access points and a minimum road width capable of handling emergency apparatus (minimum 20 ft clear per standard fire codes; prefer 26+ ft) must be maintained — this alone drives road upgrades on all four surrounding roads.

KEY EGRESS REQUIREMENT: Industry standards (ITE Trip Generation Manual) and WisDOT traffic impact study guidelines both require a formal Traffic Impact Analysis (TIA) for any development generating more than 100 peak hour trips. The Breck complex, at 250+ peak hour trips minimum, will require a TIA as a condition of any permit approval. The TIA findings will likely mandate signalization or roundabout at the primary Hwy 164 access point.

4. Highway 164 Industrial Corridor Context

Highway 164 at Big Bend is an actively developing commercial/industrial corridor — a factor that significantly changes the traffic planning baseline and cost implications for the Breck complex:

Factor	Detail & Implication
Current AADT on Hwy 164	10,300 vehicles/day (2024 commercial listing data) — already a significant arterial volume for a rural state highway. WisDOT records 41,500 AADT on I-43 at the Hwy 164 interchange.
I-43 / Hwy 164 DDI Construction	WisDOT's I-43 Rock Freeway project (WIS 83 to WIS 164) is under construction NOW (began April 2026, continues through 2027). The project replaces the existing I-43/Hwy 164 interchange with a new Diverging Diamond Interchange (DDI). This will substantially increase throughput and attractiveness of the corridor — driving

	additional commercial pressure and traffic growth on Hwy 164 north of the interchange, directly at the Breck site.
Commercial Corridor Already Established	Stein's Garden & Home, McDonald's, Subway, and Kelly's Bleachers are already operating at I-43 and Hwy 164. A 111-acre commercial land parcel adjacent to the interchange is actively marketed (zoned B-4 Highway Business, \$8M asking price). The Breck complex and its 15 acres of commercial development add to an already-growing corridor.
Design Standard Trigger	Once Hwy 164 at this location exceeds 12,000–15,000 AADT (likely within 2–4 years with DDI and Breck opening), WisDOT standards may require auxiliary turn lanes, possible 4-lane widening study, or operational improvements under their Access Management Program. The developer agreement should anticipate this.
Access Permit Complexity	Any new access point on Hwy 164 requires a WisDOT access permit. With the DDI project active, WisDOT's project managers for the Rock Freeway project are likely to impose conditions on how the Breck site's Hwy 164 access is designed and timed to protect the new interchange investment.

5. Revised Road-by-Road Cost Estimates

Cost estimates are now adjusted to reflect: (a) actual road deficiencies vs. ordinance requirements; (b) ROW acquisition needed for width expansion; (c) required access design type per Waukesha County §15-54; and (d) traffic volumes requiring signalization or roundabout.

Highway 164 — State Highway (WisDOT jurisdiction)

Item	Detail
Existing condition	2-lane, ~24 ft pavement, 3 ft shoulders; no turn lane capacity at Breck access points
Required scope	Dedicated left-turn + right-turn deceleration lanes at primary Breck entrance; potential signalization or roundabout; shoulder improvements; sight distance clearing; bypass lanes if Waukesha County directs
Ordinance trigger	Waukesha Co. §15-54(e): bypass lane mandatory when adjacent road traffic >2,500 vpd. Hwy 164 at 10,300 AADT — MANDATORY bypass/turn lanes at each access point. Type A/B/D intersection designs apply.
DDI interaction	Active WisDOT construction project at I-43/164 interchange. Breck access design must be coordinated with WisDOT Rock Freeway project team; access restrictions during 2026–2027 construction are likely.
Length affected	~0.75 mile frontage + intersection improvements at 2 access points
Low estimate	\$3,200,000 — turn lanes + shoulders + signal prep
Mid estimate	\$5,100,000 — turn lanes + roundabout at primary entrance + signal at secondary
High estimate	\$7,500,000 — full widening to 4 lanes on Breck frontage + roundabout + signals + pedestrian infrastructure

Town Line Road — Town of Vernon (north boundary)

Item	Detail
Existing condition	Estimated 20–22 ft pavement, ~33 ft ROW, no paved shoulder, minimal drainage ditches. Confirmed by Street View photograph.
Ordinance gap	Under Vernon §200-34 Business/Manufacturing standard: needs 72–80 ft ROW (gap of 39–47 ft requiring ROW acquisition from adjacent landowners) and 24 ft pavement minimum. Road must meet commercial/institutional standard given the use.
ROW acquisition	Approximately 19–23 ft of new ROW needed on each side of centerline along the ~0.5 mi section from Hwy 164 to site entrance. Agricultural land estimated at \$8,000–\$12,000/acre in Waukesha County; strip acquisition typically costs \$15–\$30/linear foot including negotiation and legal.
Required scope	Full reconstruction: widen pavement to 24 ft, expand ROW, new base 12" compacted + 5" asphalt per Vernon spec, 6 ft paved shoulders each side, drainage

	reconstruction, turning radius at Hwy 164 intersection
Length affected	~0.5 mile from Hwy 164 to east site boundary; intersection improvements at both ends
Low estimate	\$2,400,000 — reconstruction only, minimal ROW cost
Mid estimate	\$3,800,000 — full reconstruction + ROW acquisition + intersection upgrade
High estimate	\$5,200,000 — if ROW contested, pedestrian path added, drainage basin work needed

Skyline Avenue — Town of Vernon (south boundary)

Item	Detail
Existing condition	Similar to Town Line Rd — estimated 20–22 ft pavement, ~33 ft ROW, minimal shoulders.
Ordinance gap	Same deficiencies as Town Line Road. 39–47 ft ROW expansion needed under Vernon commercial standard. Flat agricultural land makes ROW acquisition relatively straightforward but still costly.
Special consideration	If Skyline Ave serves as the primary exit route (separating entry via Town Line, exit via Skyline), the egress traffic analysis demands it meet the same capacity as Town Line Rd. Dual-road management of tournament egress is sound planning practice.
Length affected	~0.5 mile from Hwy 164 to east site boundary
Low estimate	\$2,400,000
Mid estimate	\$3,800,000
High estimate	\$5,200,000

Big Bend Drive — Town of Vernon (east boundary)

Item	Detail
Existing condition	Narrowest segment — estimated 18–20 ft pavement, ~33 ft ROW. Already subject to Town of Vernon parking restrictions (\$290) on both sides near the Town Fire Pond. Hydrant access must be maintained at all times.
Special constraint	The fire pond access prohibition on Big Bend Drive is a hard constraint that limits the road's usability as a primary circulation route. Any development use must not impede emergency access. This likely disqualifies Big Bend Drive as a primary vehicle entrance/exit.
Required scope	At minimum: widen to 24 ft pavement, pave shoulders, improve drainage, maintain fire access clearance. If used as event egress: full upgrade matching Town Line Rd scope.
Length affected	~0.4 mile (Skyline to Town Line)
Low estimate	\$1,800,000 — minimal upgrade
Mid estimate	\$3,000,000 — full upgrade to commercial standard
High estimate	\$4,200,000 — if used as primary event egress + pedestrian path

Internal Circulation Roads, Intersections & Pedestrian Infrastructure

Item	Detail
Primary Hwy 164 intersection	Roundabout (preferred for event egress, no signal timing required) or traffic signal. Roundabout: \$800K–\$1.5M. Signal: \$400K–\$800K plus ongoing maintenance.
Secondary access intersections (2)	Right-in/right-out only configurations or directional medians may be imposed by WisDOT at secondary Hwy 164 access points. Turn lane improvements: \$200K–\$500K each.
Internal site roads	~0.5–0.75 miles of new internal circulation road serving 12+ diamonds, parking fields, and commercial pad sites. Must meet fire apparatus access standards. New construction at \$1.5M–\$3.0M.
Pedestrian crossings	Marked crosswalks with pedestrian signals at all Hwy 164 crossings. Required under ADA and Wisconsin traffic statutes when pedestrian volumes warrant. Estimate \$150K–\$350K per crossing location.
Parking lot stormwater	Large paved parking areas require stormwater management per Waukesha County Construction Site Erosion Control Ordinance (referenced in Vernon §200-34). Detention ponds or infiltration systems required. Estimate \$500K–\$1.5M depending

	on scope.
Low estimate	\$3,500,000
Mid estimate	\$6,000,000
High estimate	\$8,500,000

6. Revised Total Cost Summary

Road Segment / Item	Low	Mid	High
Highway 164 (turn lanes, roundabout/signal, WisDOT coordination)	\$3,200,000	\$5,100,000	\$7,500,000
Town Line Road (full reconstruction + ROW acquisition)	\$2,400,000	\$3,800,000	\$5,200,000
Skyline Avenue (full reconstruction + ROW acquisition)	\$2,400,000	\$3,800,000	\$5,200,000
Big Bend Drive (upgrade + fire access maintained)	\$1,800,000	\$3,000,000	\$4,200,000
Internal Roads, Intersections, Pedestrian, Stormwater	\$3,500,000	\$6,000,000	\$8,500,000
TOTAL REVISED ESTIMATE	\$13,300,000	\$21,700,000	\$30,600,000

Previous estimate range was \$9.1M–\$19.3M. The revised analysis, incorporating ROW acquisition costs, ordinance-mandated road widths, roundabout/signal requirements, and Hwy 164 corridor complexity, substantially increases the range. The mid estimate of \$21.7M should serve as the primary planning figure.

Note: Estimates do not include: engineering/design fees (typically 12–18% of construction costs, adding \$1.6M–\$3.9M at mid range); utility relocation; environmental studies; permit fees; or legal/right-of-way negotiation costs (add \$500K–\$1.5M). Including these soft costs, total project budget could reach \$25M–\$37M.

7. Funding Mechanisms & Recommendations

Immediate Requirements (Pre-Opening)

- Formal Traffic Impact Analysis (TIA) — mandatory before any permit. Budget \$80K–\$150K for study.
- WisDOT coordination meeting on Hwy 164 access permits and interface with I-43/164 DDI project.
- Waukesha County Public Works access permit application for all county highway connections.
- Town of Vernon Plan Commission approval of road improvement plans meeting §200-34 standards.

Funding Sources

- WisDOT Local Roads Improvement Program (LRIP): Reimburses 50–70% of eligible local road costs. Town of Big Bend is already an approved LRIP participant. Apply for Town Line Rd and Skyline Ave reconstruction.
- WisDOT Agricultural Roads Improvement Program: \$150M in 2025–27 budget for rural road upgrades — Skyline Ave and Town Line Rd may qualify given their agricultural context.
- Developer Agreement / Traffic Impact Fee: Standard mechanism requiring the Breck developer to fund improvements proportional to generated traffic. Given 250+ peak hour trips, this is legally defensible and likely required.
- Tax Increment Financing (TIF) District: Village of Big Bend could establish a TIF capturing incremental property tax from the Breck development to fund infrastructure. Requires 27-year planning horizon.
- WisDOT Developer Contribution (Hwy 164): WisDOT may require a developer contribution agreement for any turn lane or signal work on Hwy 164 triggered by the complex's traffic.

- Waukesha County Highway Improvement Grant: County may participate in funding if roads serve broader county transportation needs.

Disclaimer: These are Class 5 planning-level estimates ($\pm 50\%$). A formal Traffic Impact Analysis, preliminary engineering study, and ROW appraisals should be completed before committing to a funding strategy. Ordinance citations are based on current published codes as of May 2026 and should be verified with Town of Vernon and Waukesha County staff.