Relative Valuation Field Enhancement Analysis

Date: 2025-11-05 **Branch**: feature/enhance-valuation-variables
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EXECUTIVE SUMMARY

After analyzing the Mississauga industrial MLS dataset (23 properties), we've identified **8 high-impact fields** consistently available in MLS reports that should be added to the relative valuation model to improve competitive positioning accuracy.

Current Variables: 15 (9 core + 6 optional) **Proposed Total**: 23 (9 core + 14 optional) **New Variables**: 8

CURRENT STATE

Currently Tracked (15 variables)

Core Variables (9): 1. Net Asking Rent (/*SF*) − 16/SF) - 14% weight 4. Clear Height (ft) - 8% weight 5. % Office Space - 8% weight 6. Distance (km) - 8% weight 7. Area Difference (SF) - 8% weight 8. Year Built - 6% weight 9. Class (A/B/C) - 5% weight

Optional Variables (6): 10. Shipping Doors - Truck Level (TL) - 4% weight 11. Shipping Doors - Drive-In (DI) - 3% weight 12. Power (Amps) - 3% weight 13. Trailer Parking (Y/N) - 2% weight 14. Secure Shipping (Y/N) - 0% weight (no data) 15. Excess Land (Y/N) - 0% weight (no data)

RECOMMENDED ADDITIONS

HIGH PRIORITY (Add Immediately)

1. Bay Depth (ft) - CRITICAL

MLS Field: `Bay Size` (e.g., "55 x 52" → 55 ft) **Extraction**: Parse first number from "Bay Size" field **Sample Values**: 40 ft, 44 ft, 52 ft, 55 ft, 56 ft **Proposed Weight**: 5%

Rationale: - Directly impacts racking efficiency and storage density - Deeper bays (52'+) accommodate double-deep pallet racking - Standard 53' trailers require 54'+ bays for efficient unloading - Critical for 3PL and distribution users - More predictive of operational efficiency than % office space

Ranking: Descending (deeper is better)

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2. Lot Size (Acres) - HIGH IMPACT

MLS Field: `Lot Irreg` or `Lot Size Area` **Sample Values**: 4.95 acres, 6 acres, 11.112 acres, 37.6 acres **Proposed Weight**: 4%

Rationale: - Expansion potential - critical for growing tenants - Outdoor storage capability for materials, trailers, equipment - Future development rights (additional buildings, expansions) - Bargaining power in negotiations (more flexibility = higher value) - Differentiates otherwise identical buildings

Ranking: Descending (larger lots better)

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3. HVAC Coverage - IMPORTANT

MLS Field: `A/C` (Y/Part/N) **Sample Values**: Y (full), Part (partial), N (none) **Proposed Weight**: 3% **Data Type**: Ordinal (Y=1, Part=2, N=3)

Rationale: - Worker comfort = productivity and retention - Some products require climate control (electronics, food, pharma) - Insurance requirements for certain goods - Increasingly important in hot summers - Partial A/C (office only) vs full building is major differentiator

Ranking: Ascending (Y=1 ranks best, N=3 ranks worst)

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4. Sprinkler Type - INSURANCE IMPACT

MLS Field: `Sprinklers` + `Client Remks` (ESFR notation) **Sample Values**: - ESFR (Early Suppression Fast Response) = 1 - Standard (Y) = 2 - None (N) = 3

Proposed Weight: 3%

Rationale: - ESFR allows 40’+ clear heights and high-piled storage - 20-30% insurance premium reduction with ESFR - Commodity storage requirements (Class I-IV) - Fire marshal approval for certain uses - Mentioned prominently in marketing materials (795 Hazelhurst, 587 Avonhead)

Ranking: Ascending (ESFR=1 best, None=3 worst)

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5. Building Age (Years) - CONDITION PROXY

MLS Field: Calculated from `Year Built` **Calculation**: `2025 - Year Built` **Sample Values**: 0 years (new), 5 years, 15 years, 25 years **Proposed Weight**: 4%

Rationale: - More intuitive than “Year Built” for tenants - Directly correlates with: - Deferred maintenance costs - Energy efficiency (newer = better insulation, LED lighting) - Layout efficiency (modern vs legacy floorplans) - Technology infrastructure (fiber, EV charging) - Replace “Year Built” in rankings

Ranking: Ascending (newer = lower age = better)

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6. Rail Access - NICHE BUT CRITICAL

MLS Field: `Rail` (Y/N) **Sample Values**: Y (rail siding), N (no rail) **Proposed Weight**: 2%

Rationale: - Deal-breaker for certain industries (bulk commodities, automotive, manufacturing) - Very rare in modern industrial (only ~2% of buildings) - Commands premium rent when required - Zero value for non-rail users, but absolute requirement for rail users - Binary: you either have it or you don't

Ranking: Descending (Y=1, N=0)

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7. Crane Capability - MANUFACTURING ESSENTIAL

MLS Field: `Crane` (Y/N) **Sample Values**: Y (overhead crane), N (no crane) **Proposed Weight**: 2%

Rationale: - Essential for heavy manufacturing and assembly - Expensive retrofit (~$50K-200K+ depending on capacity) - Limits tenant pool but commands premium for those who need it - Structural requirement (building must be designed for loads) - Common in older industrial, rare in new distribution buildings

Ranking: Descending (Y=1, N=0)

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8. Occupancy Status - IMMEDIATE AVAILABILITY

MLS Field: `Occup` (Vacant/Tenant) **Sample Values**: Vacant, Tenant **Proposed Weight**: 2% **Data Type**: Binary (Vacant=1, Tenant=2)

Rationale: - Vacant = immediate occupancy (30-60 days) - Tenant-occupied = 6-12 month delay until possession - Time value of money - lost revenue during waiting period - Tenant may not vacate (deal risk) - Critical for time-sensitive relocations

Ranking: Ascending (Vacant=1 better than Tenant=2)

MEDIUM PRIORITY (Consider for Phase 2)

9. Grade Level Doors

Field: `Grade Level` **Weight**: 2% **Rationale**: Courier vans, small trucks, less critical than TL doors

10. Days on Market (DOM)

Field: `DOM` **Weight**: 2% **Rationale**: Landlord motivation indicator, negotiation leverage

11. Zoning Classification

Field: `Zoning` **Weight**: 2% **Rationale**: Permitted use restrictions, but usually pre-screened

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REVISED WEIGHTING SCHEME

Option A: Add 8 new variables, redistribute weights

Variable	Current	Proposed	Change
CORE VARIABLES (9)			
Net Asking Rent	16%	11%	-5%
Parking Ratio	15%	10%	-5%
TMI	14%	9%	-5%
Clear Height	8%	7%	-1%
% Office Space	8%	7%	-1%
Distance	8%	7%	-1%
Area Difference	8%	7%	-1%
Building Age (was Year Built)	6%	4%	-2%
Class	5%	5%	0%
OPTIONAL - EXISTING (6)			
Shipping Doors (TL)	4%	4%	0%
Shipping Doors (DI)	3%	3%	0%
Power (Amps)	3%	3%	0%
Trailer Parking	2%	2%	0%
Secure Shipping	0%	0%	0%
Excess Land	0%	0%	0%
OPTIONAL - NEW (8)			
Bay Depth	-	5%	+5%
Lot Size (Acres)	-	4%	+4%
HVAC Coverage	-	3%	+3%
Sprinkler Type	-	3%	+3%
Rail Access	-	2%	+2%
Crane	-	2%	+2%
Occupancy Status	-	2%	+2%
Grade Level Doors	-	0%	+0% (Phase 2)
TOTAL	**100%**	**100%**	

Allocation check: Core variables move from 88% → 67% (−21%), existing optional fields remain at 12%, and the seven new optional fields receive the reallocated 21%. Building Age replaces Year Built within the core bucket, so its 6% → 4% adjustment is already included in the core reduction. Totals reconcile to 100%.

EXTRACTION REQUIREMENTS

New JSON Schema Fields

```
        {
          "bay_depth_ft": 55.0,           // Parse from "Bay Size" (55 x 52
→ 55)
          "lot_size_acres": 11.112,       // From "Lot Irreg" or "Lot Size
Area"
          "hvac_coverage": 1,             // Y=1, Part=2, N=3 (ordinal)
          "sprinkler_type": 1,            // ESFR=1, Standard=2, None=3
(ordinal)
          "building_age_years": 5,        // Calculated: 2025 - year_built
          "rail_access": false,           // Boolean
          "crane": false,                 // Boolean
          "occupancy_status": 1,          // Vacant=1, Tenant=2 (ordinal)
          "grade_level_doors": 0,         // Integer (Phase 2)
          "days_on_market": 119           // Integer (Phase 2)
        }
```

Extraction Logic

Bay Depth

```
        # requires: import re
        bay_size = (property.get('Bay Size') or '').replace('×', 'x')  #
supports "55 X 52" / "55x52"
        match = re.search(r'([0-9]+(?:\.[0-9]+)?)\s*[xX]', bay_size)
        if match:
            bay_depth_ft = float(match.group(1))
```

Lot Size

```
        # requires: import re

        def parse_lot_size(raw: str) -> float | None:
            if not raw:
                return None
            cleaned = raw.replace(',', '').strip().lower()
            match = re.match(r'([0-9]+(?:\.[0-9]+)?)', cleaned)
            if not match:
                return None
            value = float(match.group(1))
            if 'sq ft' in cleaned or 'sqft' in cleaned:
                return value / 43560  # convert square feet to acres
            if 'acre' in cleaned:
                return value
            return None

        lot_irreg = property.get('Lot Irreg', '')  # e.g., "11.112 acres" or
"484,280 Sq Ft"
        lot_size_area = property.get('Lot Size Area', '')  # e.g., "6 Acres"

        lot_size_acres = parse_lot_size(lot_irreg) or
parse_lot_size(lot_size_area)
```

HVAC Coverage

```
        ac = property.get('A/C', 'N')
        hvac_coverage = {'Y': 1, 'Part': 2, 'N': 3}.get(ac, 3)
```

Sprinkler Type

```
        sprinklers = property.get('Sprinklers', 'N')
        client_remarks = property.get('Client Remks', '')

        if 'ESFR' in client_remarks or 'esfr' in client_remarks.lower():
            sprinkler_type = 1  # ESFR
        elif sprinklers == 'Y':
            sprinkler_type = 2  # Standard
        else:
            sprinkler_type = 3  # None
```

Building Age

```
        analysis_year = 2025  # align with report date or pass in analysis
metadata
        year_built_raw = property.get('year_built')
        if year_built_raw is not None and str(year_built_raw).strip():
            building_age_years = analysis_year -
int(str(year_built_raw).strip())
        else:
            building_age_years = None
```

Always prefer sourcing `analysis_year` from the comparable file's `analysis_date` field so results remain consistent regardless of when the code runs.

IMPACT ANALYSIS

Expected Ranking Changes

Based on the Mississauga dataset, adding these 8 variables will likely:

1. **Improve rank** for properties with:
   - ESFR sprinklers (795 Hazelhurst, 587 Avonhead, 560 Slate)
   - Deep bays 54'+ (795 Hazelhurst 55', 745 Hazelhurst 55', 6525 Mississauga 56')
   - Large lots 10+ acres (587 Avonhead 37.6 acres)
   - Full A/C (795 Hazelhurst, 745 Hazelhurst, 6525 Mississauga)
   - Vacant status (immediate occupancy)
2. **Hurt rank** for properties with:
   - Shallow bays <45' (520 Abilene, 6975 Pacific)
   - Small lots <5 acres (520 Abilene 4.95 acres)
   - No A/C or Part A/C
   - Tenant-occupied (delayed possession)
   - Older buildings 15+ years (6975 Pacific 16-30 years)
3. **Subject Property (2550 Stanfield Rd Opt 2)** impact:
   - Currently ranks #3 of 23
   - Bay depth not specified in listing → need to research
   - Lot size not specified → multi-tenant building, shared lot
   - A/C: Part → moderate score
   - Sprinklers: Y (not ESFR) → moderate score
   - Building Age: 5 years (2020) → excellent
   - Occupancy: Vacant → excellent
   - **Net impact**: Likely maintain or slightly improve #3 ranking

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RECOMMENDATIONS

Phase 1: Immediate (This Branch)

1. □ Add 8 new optional variables to schema
2. □ Update extraction logic to parse new fields
3. □ Revise weighting algorithm with proposed distribution
4. □ Re-run Mississauga analysis with enhanced model
5. □ Compare old vs new rankings to validate model

Phase 2: Future Enhancement

6. Add Days on Market (DOM) - landlord motivation
7. Add Grade Level Doors - alternative shipping
8. Add Zoning classification - use restrictions
9. Create tenant persona weights (3PL vs Manufacturing vs Office)
10. Add “must-have” filters (e.g., Rail=Y for certain users)

VALIDATION PLAN

Test Cases

Test 1: Properties with ESFR sprinklers should rank higher - 795 Hazelhurst, 587 Avonhead, 560 Slate should improve

Test 2: Properties with deep bays (55’+) should rank higher - 795 Hazelhurst (55’ bays) should improve vs 520 Abilene (unknown bays)

Test 3: New construction should rank higher than 15+ year old - 2550 Stanfield (2020) should rank higher than 6975 Pacific (16-30 years old)

Test 4: Vacant should rank higher than Tenant-occupied - All else equal, vacant properties receive 2% of the total weighting via the Occupancy Status variable

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NEXT STEPS

1. Review and approve field additions
2. Update JSON schema in Python calculator
3. Update extraction logic in slash command
4. Re-extract Mississauga dataset with new fields
5. Re-run analysis and compare rankings
6. Generate comparison report (old vs new model)
7. Update documentation

END OF ANALYSIS