02_MASTER_PLAN.md

BAT Integration - Complete Execution Plan
Single Source of Truth for Timeline & Tasks

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🎯 EXECUTIVE SUMMARY

Purpose
Integrate Richmond American Homes and Holt Homes Builder Acceleration Tools (BATs) into a unified, standardized, database-driven platform ahead of the **March 2026 merger**. This is not just data migration—it's building competitive advantage through expertise preservation and system unification.

Project Scope
- **Timeline:** 12 weeks (November 11 - February 28, 2026)
- **Investment:** 148 hours (12.3 hours/week average)
- **Team:** Corey (lead), William (Richmond), Alicia (Holt), Claude (AI architect)
- **Outcome:** Unified system with 8 weeks production testing before merger

Current Reality (November 10, 2025)

☑ What You Have:
- Holt pricing updater (Python) - **PRODUCTION READY**
- Plan Index structures in both BATs
- Material databases: 44 Richmond plans + 47 Holt plans
- Monday's analysis complete (45 pages documentation)
- 64,977 total material line items ready for migration

⚠ What Needs Work:
- No standardized coding system across builders
- Architecture decisions not yet made (Tuesday's work)
- Richmond BAT incomplete (9 of 44 plans active)
- No table naming conventions
- No database structure designed

Success Vision (March 2026)
- ☑ Single unified BAT system operational
- ☑ 100% plan coverage (both builders)
- ☑ Zero pricing errors through database validation
- ☑ Material orders: 15 minutes → 2 minutes

- ☑ Team trained and productive
- ☑ 8 weeks of production testing complete

📊 GROUND TRUTH - CURRENT STATE

Richmond BAT Status
```
File: RICHMOND_3BAT_NOVEMBER_2025_10-17-25_Updated_11-07-25.xlsm
Sheets: 38 total
Plans Active: 9 of 44 (20%)
Plans Ready: 44 total (CONFIRMED in RAH_MaterialDatabase.xlsx)
Material Items: 55,604 line items total
Unique SKUs: 581
Status: Ready for automated import
Critical Issue: Triple-encoded elevation data (|10.82BCD)
```

Holt BAT Status
```
File: HOLT_BAT_NOVEMBER_2025_10-28-25.xlsm
Sheets: 103 total
Plans Active: 47 of 50 (94%)
Material Items: 9,373 line items
Communities: 5 active (GG, CR, HH, HA, WR)
Python Updater: PRODUCTION READY
Status: Nearly complete, stable system
```

Python Pricing Updater Status
```
Tool: holt_updater.py (390 lines)
Status: ☑ PRODUCTION READY
Features:
  ☑ Updates 15,000+ rows in seconds
  ☑ Column-specific targeting (PL01-PL12)
  ☑ One-click batch file operation
  ☑ Timestamped backups
  ☑ Visual change highlighting
  ☑ Professional error handling

⚠ Needs enhancements:
  - Price change log (1 hour)
  - Preview mode (0.5 hours)
  - Richmond adaptation (2 hours)
```

Monday's Completed Work ☑
```
```

Date: November 10, 2025
Time: 4 hours

Completed:
☑ Item numbering audit (746 items analyzed)
☑ Richmond structure audit (pricing infrastructure mapped)
☑ 45 pages documentation created
☑ item_numbering_patterns.txt
☑ richmond_structure.txt
☑ WEEK1_MONDAY_SUMMARY.txt

Key Findings:
☑ Richmond: Hierarchical 6-digit codes (confirmed)
☑ Holt: Descriptive 4-6 character codes (confirmed)
☑ Community is job-level, not item-level attribute
☑ Both systems have 64,977 line items total
☑ Triple-encoding problem identified and documented
☑ Translation table strategy defined
```

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## 🗺 12-WEEK INTEGRATED ROADMAP

## PHASE 1: FOUNDATION (Weeks 1-4) - 52 hours

### **WEEK 1 (Nov 11-15): Standards + Architecture** ⭐ CURRENT WEEK
**Total: 18 hours** (Enhanced from original 14 hours)

#### **Monday (Nov 11) - 4 hours** ☑ COMPLETE
```
Item Numbering Audit (2 hours)
├─ Richmond "Item Pricing" sheet analysis
├─ Holt IWP and RL sheet analysis
├─ Document prefixes, ranges, patterns
└─ Identify inconsistencies

Richmond Structure Audit (2 hours)
├─ Document pricing sheet structure
├─ Map columns for updater adaptation
├─ Identify price levels (L1-L5)
├─ Plan/elevation/option relationships
└─ Output: richmond_structure.txt

Status: ☑ COMPLETE
Deliverables: ☑ item_numbering_patterns.txt, richmond_structure.txt
```

#### **Tuesday (Nov 12) - 6 hours** 🟥 CRITICAL DAY
```

```
SESSION 1: Map Hierarchies (2 hours)
├─ Richmond hierarchy analysis
│   ├─ How plans encode (G603, G603B, LE93 G603B?)
│   ├─ How elevations work (variant or dimension?)
│   ├─ How options relate to plans
│   └─ Current table relationships
│
├─ Holt hierarchy analysis
│   ├─ How plans encode (1670, 1670ABCD?)
│   ├─ How communities fit (CR, GG, WR?)
│   ├─ How pack system works (10.82, 12.x5?)
│   └─ Current table relationships
│
└─ Outputs: richmond_hierarchy_map.txt, holt_hierarchy_map.txt

SESSION 2: Make Architecture Decisions (2 hours)
├─ DECISION 1: Plan-Pack Relationship (30 min)
│  Question: Can pack "12.x5" work on multiple plans with same materials?
│  Options: Universal Pack vs Plan-Specific Pack
│  Impact: Determines primary keys, table structure
│  Output: DECISION_1_Plan_Pack_Relationship.md
│
├─ DECISION 2: Plan-Elevation Model (30 min)
│  Question: Is "G603B" one plan or Plan G603 + Elevation B?
│  Options: Elevation as Variant vs Elevation as Dimension
│  Impact: Determines how you query and join tables
│  Solves: Triple-encoding problem (|10.82BCD)
│  Output: DECISION_2_Plan_Elevation_Model.md
│
└─ DECISION 3: Internal Option Codes (60 min)
   Question: What's YOUR internal standard?
   Options: Keep Richmond, Keep Holt, Create Hybrid, Create New
   Impact: User interface, database design, translation needs
   Output: DECISION_3_Internal_Option_Codes.md

SESSION 3: Database Schema Design (2 hours)
├─ Design 10 core tables based on decisions
│   ├─ builders (Richmond, Holt)
│   ├─ plans (plan_id, builder_id)
│   ├─ plan_elevations (elevation_id, plan_id)
│   ├─ packs (pack_id, pack_name, phase)
│   ├─ materials (material_id, plan_id, pack_id, item_number)
│   ├─ items (item_id, description, category)
│   ├─ pricing (price_id, item_id, price_level, effective_date)
│   ├─ communities (community_id, name, builder_id)
│   ├─ option_translation (richmond_code, holt_code, description)
│   └─ pack_hierarchy (pack_id, parent_pack_id, order)
│
├─ Solve triple-encoding problem
│  Example: |10.82BCD becomes:
```

```
│  - pack_id: "10.82"
│  - elevation_mappings: B, C, D (separate table)
│  - Single source of truth
│
├─ Add Prism SQL migration notes
│  - SQLite type → Prism type conversions
│  - Migration script template
│  - Data export/import procedures
│
└─ Outputs: schema_design_v1.sql, import_mapping_rules.md

Deliverables:
☐ richmond_hierarchy_map.txt
☐ holt_hierarchy_map.txt
☐ DECISION_1_Plan_Pack_Relationship.md
☐ DECISION_2_Plan_Elevation_Model.md
☐ DECISION_3_Internal_Option_Codes.md
☐ schema_design_v1.sql (with Prism notes)
☐ import_mapping_rules.md

Why This Day is Critical:
❗ These decisions lock in the foundation for all future work
❗ Wrong choices = 4-6 weeks of rework later
❗ Right choices = smooth execution Weeks 2-12
❗ Can't start Week 5 imports without clear target structure
```

Wednesday-Thursday (Nov 13-14) - 8 hours
```
Wednesday (4 hours): Draft Coding Standards
├─ Plan coding (based on Decision 2)
│  Format: [PREFIX][NUMBER][VARIANT?]
│  Examples: G603, G603B, 1670
│  Validation rules: 4-6 characters, alphanumeric
│
├─ Pack coding (MindFlow structure)
│  Format: |[PHASE].[VARIANT] [DESCRIPTION] - [OPTION_CODE]
│  Examples: |10.82 OPT DEN FOUNDATION
│  Hierarchy: Phase groups related packs
│
├─ Internal option codes (based on Decision 3)
│  Richmond: XGREAT, 2CAR5XA, FPSING01
│  Holt: 167010100, 164910105
│  Standard: [Choose based on Decision 3]
│
└─ Material item numbering
   Richmond: 6-digit hierarchical
   Holt: 4-6 character descriptive
   Both valid, document translation
```

```
Thursday (4 hours): Refine Documentation
├─ Create BAT_Coding_Standards.docx
│   ├─ Section 1: Philosophy (WHY we have standards)
│   ├─ Section 2: Plan Coding (with examples)
│   ├─ Section 3: Pack Coding (with hierarchy)
│   ├─ Section 4: Option Codes (with translation)
│   ├─ Section 5: Material Items (both systems)
│   ├─ Section 6: Validation Rules
│   └─ Section 7: Examples (good and bad)
│
├─ Prepare team review materials
│   ├─ Summary slide/doc
│   ├─ Key decisions highlighted
│   ├─ Examples from real data
│   └─ Questions for validation
│
└─ Test examples with real BAT data

Deliverables:
⧖ BAT_Coding_Standards.docx (comprehensive)
⧖ Team review materials
⧖ Test validation complete
```

Friday (Nov 15) - 2 hours
```
Team Validation Session (2 hours)
├─ Present to William Hatley (Richmond expert)
│   ├─ Review Richmond plan structure
│   ├─ Validate item numbering decisions
│   ├─ Confirm price level structure
│   └─ Get feedback on coding standards
│
├─ Present to Alicia Vandehey (Holt expert)
│   ├─ Review Holt community structure
│   ├─ Validate pack hierarchy
│   ├─ Confirm plan-elevation relationships
│   └─ Get feedback on coding standards
│
├─ Incorporate feedback
│   ├─ Update decisions if needed
│   ├─ Revise schema if necessary
│   ├─ Adjust coding standards
│   └─ Document changes
│
└─ Finalize Week 1
    ├─ Create Phase_1_Foundation_Summary.md
    ├─ Lock coding standards (formal review process for changes)
    ├─ Add reference sheets to both BATs
    └─ Ready for Week 2
```

```
Deliverables:
☒ Team validation complete
☒ All feedback incorporated
☒ Coding standards finalized
☒ Reference sheets in BAT files
☒ Week 1 complete! 🎉

Week 1 Success Criteria:
✓ Three architecture decisions made and documented
✓ Database schema designed (10 core tables)
✓ Import mapping rules defined
✓ Triple-encoding problem solved
✓ Coding standards documented
✓ William validated (Richmond perspective)
✓ Alicia validated (Holt perspective)
✓ Team understands and agrees
✓ Foundation locked and approved
```

WEEK 2 (Nov 18-22): Pricing Infrastructure
Total: 10 hours (Reduced from 16 - updater already works!)

Monday (Nov 18) - 2 hours
```
Current Updater Validation
├─ Test holt_updater.py on November 2025 BATs
├─ Verify all features work correctly
│  ├─ Price updates apply correctly
│  ├─ Backups create successfully
│  ├─ Change highlighting works
│  └─ Error handling catches issues
├─ Document any issues found
└─ Create test results report

Output: Updater validation report
```

Tuesday (Nov 19) - 1.5 hours
```
Add Enhancements
├─ Price change log sheet (1 hour)
│  ├─ Create "PriceChangeLog" sheet
│  ├─ Columns: Date, Item, Old Price, New Price, Level, User
│  ├─ Auto-populate on update
│  └─ Test logging functionality
│
└─ Preview mode (0.5 hours)
```

```
    ├─ Add --preview flag
    ├─ Show changes without applying
    ├─ Generate preview report
    └─ Test preview functionality

Output: Enhanced holt_updater.py v2.0
```

Wednesday (Nov 20) - 2 hours
```
Richmond Version Creation
├─ Copy holt_updater.py → richmond_updater.py
├─ Update column mappings from richmond_structure.txt
│   ├─ Price level columns (L1-L5 vs PL01-PL12)
│   ├─ Sheet name patterns
│   ├─ Table identification logic
│   └─ Backup naming convention
│
├─ Update price level structure
│   ├─ Richmond uses L1, L2, L3, L4, L5
│   ├─ Column positions different
│   └─ Validation rules
│
└─ Test on Richmond BAT copy
    ├─ Test with small CSV first
    ├─ Verify updates apply correctly
    ├─ Check backup creation
    └─ Validate highlighting

Output: richmond_updater.py (fully functional)
```

Thursday (Nov 21) - 3.5 hours
```
Price Schedule Integration
├─ Add Richmond price schedule sheet (2 hours)
│   ├─ Create "PriceSchedule" sheet
│   ├─ Columns: Item, Description, L1, L2, L3, L4, L5, Last Updated
│   ├─ Import from current price data
│   ├─ Add lookup formulas
│   └─ Link to updater tool
│
├─ Verify Holt price schedule structure (1 hour)
│   ├─ Review existing sheet
│   ├─ Confirm PL01-PL12 structure
│   ├─ Check formulas
│   └─ Document any issues
│
└─ Link to updater tools (0.5 hours)
    ├─ Update both updaters to reference schedule
```

```
    ├─ Add validation against schedule
    └─ Test end-to-end workflow

Output: Integrated price schedules
```

Friday (Nov 22) - 1 hour
```
Documentation & Training
├─ Update README files (0.5 hours)
│   ├─ Holt updater documentation
│   ├─ Richmond updater documentation
│   ├─ Price schedule usage
│   └─ Troubleshooting guide
│
├─ Create batch files (0.25 hours)
│   ├─ RUN_HOLT_UPDATE.bat
│   ├─ RUN_RICHMOND_UPDATE.bat
│   └─ Test both launchers
│
└─ Team demo (0.25 hours)
    ├─ Show price update workflow
    ├─ Demonstrate preview mode
    ├─ Explain price change log
    └─ Answer questions

Deliverables:
☑ Enhanced holt_updater.py (with logging & preview)
☑ richmond_updater.py (full functionality)
☑ RUN_HOLT_UPDATE.bat
☑ RUN_RICHMOND_UPDATE.bat
☑ Richmond price schedule integrated
☑ Holt price schedule verified
☑ Documentation updated
☑ Team trained on tools
☑ Week 2 complete! 🎉
```

WEEK 3 (Nov 25-29): Standardization
Total: 14 hours

Monday (Nov 25) - 4 hours
```
Table Inventory
├─ Map all tables in Richmond BAT (2 hours)
│   ├─ Use Table_Inventory_Template.md
│   ├─ Document: Table name, Type, Plan, Purpose
│   ├─ Count: ~38 sheets
```

```
│   └─ Output: richmond_table_inventory.xlsx
│
└─ Map all tables in Holt BAT (2 hours)
    ├─ Use same template
    ├─ Document: Table name, Type, Plan, Community, Purpose
    ├─ Count: ~103 sheets
    └─ Output: holt_table_inventory.xlsx

Deliverable: Complete table inventories
```

Tuesday (Nov 26) - 4 hours
```
Table Naming Convention
├─ Define convention (2 hours)
│  Format: tableType_planNumber_community_elevation
│  Examples:
│  - materialist_G603_A (Richmond with elevation)
│  - materialist_G603 (Richmond no elevation)
│  - bidtotals_1649_GG_A (Holt with community)
│  - pricing_base (shared resources)
│  - schedule_PriceSchedule (master schedules)
│
│  Special cases:
│  - Plan Index: "PlanIndex"
│  - Item Pricing: "ItemPricing"
│  - Reference sheets: "ref_[topic]"
│  - Lookup tables: "lookup_[type]"
│
├─ Document in Table_Naming_Convention.docx (1 hour)
│   ├─ Format rules
│   ├─ Examples (good and bad)
│   ├─ Special cases
│   ├─ Validation rules
│   └─ Migration checklist
│
└─ Create rename automation VBA (1 hour)
    ├─ Read inventory sheet
    ├─ Generate new names
    ├─ Batch rename with formula preservation
    ├─ Log results
    └─ Test on 5 sheets first

Deliverable: Naming convention + automation tool
```

Wednesday (Nov 27) - 4 hours
```
Apply Renaming
├─ Batch rename Richmond tables (1.5 hours)
```

```
│   ├─ Backup file first
│   ├─ Run automation on all sheets
│   ├─ Review rename log
│   └─ Spot-check formulas
│
├─ Batch rename Holt tables (2 hours)
│   ├─ Backup file first
│   ├─ Run automation on all sheets
│   ├─ Review rename log
│   └─ Spot-check formulas
│
└─ Validate all formulas still work (0.5 hours)
    ├─ Open both files
    ├─ Check for #REF! errors
    ├─ Test key formulas
    ├─ Document any issues
    └─ Fix if needed

Deliverable: All tables renamed and validated
```

Thursday (Nov 28) - 2 hours (Thanksgiving - may adjust)
```
Cross-Reference Sheets
├─ Create Holt community cross-reference (1 hour)
│   ├─ Sheet: "ref_Communities"
│   ├─ Columns: Community Code, Name, Active Plans, Notes
│   ├─ Data: CR, GG, HA, HH, WR
│   └─ Add lookup formulas
│
└─ Create Holt plan-to-elevation mapping (1 hour)
    ├─ Sheet: "ref_PlanElevations"
    ├─ Columns: Plan, Elevations Available, Community
    ├─ Data: All 47 plans
    └─ Add lookup formulas

Deliverables:
☑ All tables renamed per convention
☑ Table_Naming_Convention.docx
☑ Holt cross-reference sheets
☑ Validation complete
☑ Week 3 complete! 🎉
```

WEEK 4 (Dec 2-6): Plan Details
Total: 8 hours

Monday-Tuesday (Dec 2-3) - 4 hours

```
Add Arch/Eng Date Columns
├─ Add columns to Plan Index (both BATs) (2 hours)
│   ├─ Richmond Plan Index
│   │   ├─ Add "Arch Date" column
│   │   ├─ Add "Eng Date" column
│   │   └─ Format as Date type
│   │
│   └─ Holt Plan Index
│       ├─ Add "Arch Date" column
│       ├─ Add "Eng Date" column
│       └─ Format as Date type
│
└─ Research date sources (2 hours)
    ├─ Check plan files
    ├─ Review design documents
    ├─ Ask William/Alicia
    └─ Document date retrieval process

Deliverable: Date columns added to both Plan Indexes
```

Wednesday-Thursday (Dec 4-5) - 3 hours
```
Populate Dates
├─ Richmond plans (1.5 hours)
│   ├─ 9 active plans first
│   ├─ Research dates for each
│   ├─ Enter in Plan Index
│   └─ Flag any TBD/missing
│
└─ Holt plans (1.5 hours)
    ├─ 47 active plans
    ├─ Research dates for each
    ├─ Enter in Plan Index
    └─ Flag any TBD/missing

Get team validation:
├─ William verifies Richmond dates
├─ Alicia verifies Holt dates
└─ Document any corrections

Deliverable: Complete Plan Indexes with dates
```

Friday (Dec 6) - 1 hour
```
Foundation Checkpoint
├─ Review all Week 1-4 deliverables (0.5 hours)
│   ├─ Week 1: Architecture decisions ✓
```

```
│   ├─ Week 2: Pricing tools ✓
│   ├─ Week 3: Standardization ✓
│   └─ Week 4: Plan details ✓
│
├─ Validate everything working (0.25 hours)
│   ├─ Test pricing updaters
│   ├─ Check table names
│   ├─ Verify formulas
│   └─ Review Plan Indexes
│
├─ Document any issues (0.125 hours)
│   └─ Create issues list if needed
│
└─ Prepare for content phase (0.125 hours)
    ├─ Review import script
    ├─ Prepare test data
    └─ Schedule Week 5 work

Deliverables:
☑ Complete Plan Index with dates
☑ Foundation Phase complete
☑ Ready for Richmond plan imports
☑ Phase 1 complete! 🎉

Phase 1 Success Criteria:
✓ Coding standards finalized and approved
✓ Database schema designed
✓ Pricing tools operational (both builders)
✓ Tables renamed with convention
✓ Plan Indexes complete
✓ Team trained and confident
✓ Ready to import 35 Richmond plans
```

PHASE 2: CONTENT IMPORT (Weeks 5-8) - 32 hours

Richmond Plan Import Strategy

Source Data:
```
File: RAH_MaterialDatabase.xlsx
Location: /mnt/project/ (uploaded)
Sheet: Combined_A_to_G
Total Plans: 44 confirmed
Total Materials: 43,952 line items
Unique SKUs: 581
Import Method: Python automated script (import_richmond_materials.py)
```

Import Groupings:
```
Small Plans (<500 materials): 8 plans - Week 5
Medium Plans (500-1500): 12 plans - Week 6
Large Plans (1500-3000): 15 plans - Week 7
Largest Plans (3000+): 9 plans - Week 8

Total: 44 plans over 4 weeks
Strategy: Start small, scale up as confidence grows
```

WEEK 5 (Dec 9-13): Small Plans
Total: 8 hours

Monday (Dec 9) - 2 hours
```
Setup & Test
├─ Copy import_richmond_materials.py script (0.5 hours)
│   ├─ From template or create new
│   ├─ Update file paths
│   └─ Configure for Richmond format
│
├─ Update configuration (0.5 hours)
│   ├─ Source: RAH_MaterialDatabase.xlsx
│   ├─ Target: RICHMOND_3BAT.xlsm
│   ├─ Sheet name format: materialist_[PLAN]
│   ├─ Column mapping per coding standards
│   └─ Validation rules
│
└─ Test on ONE plan (1 hour)
    ├─ Choose: G18L (smallest at ~200 materials)
    ├─ Run import script
    ├─ Verify output format
    ├─ Check formulas
    ├─ Validate data
    └─ Fix any issues

Output: Import script tested and working
```

Tuesday-Wednesday (Dec 10-11) - 4 hours
```
Import Small Plans
Plans: G18L, G19E, G21D, G31H, G33H, G44H, G48H, G148
(All <500 materials each)

Batch 1 (Tuesday - 2 hours): G18L, G19E, G21D, G31H
```

```
├─ Run import for each plan
├─ Validate material counts match source
├─ Check table formatting
├─ Update Plan Index
└─ Document any issues

Batch 2 (Wednesday - 2 hours): G33H, G44H, G48H, G148
├─ Run import for each plan
├─ Validate material counts match source
├─ Check table formatting
├─ Update Plan Index
└─ Document any issues

Output: 8 small plans imported
```

Thursday-Friday (Dec 12-13) - 2 hours
```
Validation & Review
├─ Material counts verification (0.5 hours)
│  ├─ Compare to source database
│  ├─ Document any discrepancies
│  └─ Investigate issues
│
├─ Table naming check (0.25 hours)
│  ├─ All follow materialist_PLAN format
│  └─ Consistent with standards
│
├─ Formula validation (0.5 hours)
│  ├─ No #REF! errors
│  ├─ Pricing formulas correct
│  └─ Totals calculate properly
│
├─ Plan Index update (0.25 hours)
│  ├─ All 8 plans marked active
│  ├─ Material counts updated
│  └─ Status = "Complete"
│
└─ Team review (0.5 hours)
   ├─ Show imported plans to William
   ├─ Get feedback
   └─ Document for next week

Milestone: 17 of 44 plans complete (38%)

Deliverables:
☑ 8 small Richmond plans imported
☑ Material counts validated
☑ Tables properly formatted
☑ Plan Index updated
```

☑ Team review complete
☑ Week 5 complete! 🎉
```

---

### **WEEK 6 (Dec 16-20): Medium Plans**
**Total: 10 hours**

**Plans:** G591, G592, G593, G600, G625, G626, G654, G712, G713, G720, G742, G753
**Materials:** 500-1,000 each

#### **Monday-Tuesday (Dec 16-17) - 4 hours**
```
Batch 1: 6 Plans
Plans: G591, G592, G593, G600, G625, G626

Process:
├─ Run import script for each (3 hours)
├─ Validate as importing (0.5 hours)
└─ Quick spot-checks (0.5 hours)

Output: 6 medium plans imported
```

#### **Wednesday-Thursday (Dec 18-19) - 4 hours**
```
Batch 2: 6 Plans
Plans: G654, G712, G713, G720, G742, G753

Process:
├─ Run import script for each (3 hours)
├─ Validate as importing (0.5 hours)
└─ Quick spot-checks (0.5 hours)

Output: 6 more medium plans imported
```

#### **Friday (Dec 20) - 2 hours**
```
Validation & Performance Check
├─ Material counts verification (0.5 hours)
├─ Performance check (0.5 hours)
│ ├─ File size growth
│ ├─ Load time
│ ├─ Calculation speed
│ └─ Document if concerns
│
├─ Plan Index update (0.5 hours)
│ ├─ All 12 plans marked active

```
│   └─ Status updated
│
└─ Week 6 checkpoint (0.5 hours)
    ├─ Review progress
    ├─ Document any issues
    └─ Prepare for Week 7

Milestone: 29 of 44 plans complete (66%)

Deliverables:
☑ 12 medium Richmond plans imported
☑ Performance validated
☑ Plan Index updated
☑ Week 6 complete! 🎉
```

WEEK 7 (Dec 23-27): Large Plans
Total: 10 hours (Holiday week - adjust as needed)

Plans: 15 large plans (1500-3000 materials each)
Including: G250, G260, G639, G698, G730, G760, and others

Monday-Wednesday (Dec 23-25) - 6 hours
```
Note: Christmas week - flexible scheduling

Batch Import: 15 Large Plans
├─ Group into 3 batches of 5 plans
├─ Run imports (5 hours)
├─ Basic validation during import (1 hour)
└─ Document any issues

Output: 15 large plans imported
```

Thursday-Friday (Dec 26-27) - 4 hours
```
Validation & Review
├─ Material counts verification (1 hour)
├─ Performance assessment (1 hour)
│   ├─ File size now significant
│   ├─ Load time monitoring
│   └─ Document concerns
│
├─ Plan Index update (1 hour)
│   └─ All 15 plans marked active
│
└─ Week 7 checkpoint (1 hour)
```

```
    ├─ Review progress
    ├─ Assess Week 8 strategy
    └─ Plan database migration timing

Milestone: 44 of 44 plans imported (100%)!

Wait - that's only 29 + 12 + 15 = 56 plans?

CORRECTION: Let me recount from source
- Week 5: 8 plans
- Week 6: 12 plans
- Week 7: 8 plans (large)
- Week 8: 7 plans (largest)
Total: 35 NEW plans + 9 existing = 44 total

Adjusted Week 7:
8 Large Plans (1500-3000 materials)
Plans: G250, G260, G639, G654, G698, G712, G730, G760

Milestone: 29 of 44 plans complete (66%)

Deliverables:
☑ 8 large Richmond plans imported
☑ Performance monitored
☑ Plan Index updated
☑ Week 7 complete! 🎉
```

WEEK 8 (Dec 30-Jan 3): Final Plans + Validation
Total: 8 hours (New Year week)

Plans: 7 largest plans (3000+ materials each)
Including: G603, G914, LE01, LE91, LE92, LE93, LE95

Monday-Tuesday (Dec 30-31) - 4 hours
```
Final Import: 7 Largest Plans
├─ These are the biggest plans
├─ Import one at a time (3 hours)
├─ Validate each carefully (1 hour)
└─ Document file size impact

Output: Final 7 plans imported

Status: ALL 44 RICHMOND PLANS COMPLETE! 🎉
```

Wednesday-Friday (Jan 1-3) - 4 hours

```
Complete Dataset Validation
├─ Comprehensive material count check (1 hour)
│   ├─ Source: 43,952 materials
│   ├─ Imported: Verify match
│   └─ Document any discrepancies
│
├─ Performance final assessment (1 hour)
│   ├─ File size: Expect 50-80 MB
│   ├─ Load time: Measure
│   ├─ Calculation speed: Test
│   └─ Recommend database migration timing
│
├─ Plan Index final update (0.5 hours)
│   ├─ All 44 plans marked active
│   ├─ All material counts verified
│   └─ Status: "Complete"
│
├─ Create validation report (1 hour)
│   ├─ Import statistics
│   ├─ Data quality metrics
│   ├─ Performance metrics
│   ├─ Issues encountered
│   └─ Recommendations
│
└─ Phase 2 checkpoint (0.5 hours)
    ├─ Celebrate completion!
    ├─ Review next phase
    └─ Plan database migration

Milestone: 44 of 44 plans complete (100%)! 🎊

Deliverables:
☑ Final 7 Richmond plans imported
☑ Complete dataset validation
☑ Validation report created
☑ 100% plan coverage achieved
☑ Phase 2 complete! 🎉

Phase 2 Success Criteria:
✓ All 44 Richmond plans imported
✓ All 43,952 materials in BAT
✓ Data quality validated
✓ Performance acceptable
✓ Team can use all plans
✓ Ready for database phase
```

PHASE 3: INFRASTRUCTURE & TESTING (Weeks 9-12) - 64 hours

WEEK 9-10 (Jan 6-17): Database & Tools
Total: 40 hours over 2 weeks

Database Strategy Decision (Week 9 Day 1 - 4 hours)
```
Critical Decision Point

Options:
A) SQLite + ODBC
   Pros: Robust, queryable, scalable, standards-based
   Cons: Technical setup, ODBC drivers, team training
   Best for: Long-term, sophisticated queries

B) SharePoint Lists
   Pros: Multi-user, auto-sync, version control, familiar
   Cons: Network dependency, SharePoint setup
   Best for: Collaboration, always-updated

C) Keep Excel Embedded
   Pros: No change, self-contained
   Cons: Size limits, single-user, backup issues
   Best for: Status quo (not recommended)

Process:
├─ Evaluate based on March merger needs
├─ Consider Prism SQL migration path
├─ Test with sample data
├─ Get team input
└─ Make decision and document

Output: Database_Strategy_Decision.md

Recommended: Option A (SQLite → Prism SQL)
├─ Develop in SQLite (Week 9-10)
├─ Migrate to Prism SQL (Week 11-12)
├─ Use schema_design_v1.sql with Prism notes
└─ Export CSV → Import to Prism with type conversion
```

Database Creation & Population (Week 9-10 - 20 hours)
```
IF SQLite chosen:

Create Database (4 hours)
├─ Run schema_design_v1.sql
├─ Create bat_master.db
├─ Verify table structure
└─ Add indexes
```

```
Population Scripts (8 hours)
├─ export_to_csv.py (export from Excel)
├─ import_to_sqlite.py (import to database)
├─ validate_data.py (check integrity)
└─ Test with sample data

Full Import (4 hours)
├─ Export Richmond BAT to CSV
├─ Export Holt BAT to CSV
├─ Import both to database
├─ Validate counts and relationships
└─ Test queries

Database Testing (4 hours)
├─ Test all major queries
├─ Performance benchmarks
├─ Data integrity checks
└─ Document results

Output: bat_master.db (fully populated)
```

Excel Tool Development (Week 9-10 - 12 hours)
```
Material Order Generator (4 hours)
├─ Create BAT_Material_Order_Generator.xlsm
├─ ODBC connection to database
├─ Plan selection interface
├─ Query builder
├─ Export to formatted order
└─ Test thoroughly

Price Lookup Tool (3 hours)
├─ Create BAT_Price_Lookup.xlsm
├─ ODBC connection to database
├─ Item search interface
├─ Price level selection
├─ Display results
└─ Test thoroughly

Plan Comparison Tool (3 hours)
├─ Create BAT_Plan_Comparison.xlsm
├─ ODBC connection to database
├─ Multi-plan selection
├─ Side-by-side comparison
├─ Cost analysis
└─ Test thoroughly

Formatting Automation (2 hours)
```

```
├─ Apply consistent theme to all sheets
├─ Colors, fonts, borders
├─ Batch processing macro
└─ Document theme standard

Output: 3 Excel tools operational + formatted BATs
```

User Testing & Refinement (Week 10 - 4 hours)
```
User Testing
├─ William tests Richmond workflows (2 hours)
├─ Alicia tests Holt workflows (2 hours)
└─ Collect feedback

Refinements based on feedback
├─ Fix bugs identified
├─ Improve usability
├─ Add requested features (if quick)
└─ Document limitations

Deliverables:
☑ Database created and populated
☑ Excel tools operational
☑ Formatting complete
☑ User testing complete
☑ Weeks 9-10 complete! 🎉
```

WEEK 11 (Jan 20-24): Enhancements
Total: 12 hours

Monday-Tuesday (Jan 20-21) - 6 hours
```
Data Extraction Tools
├─ Export to Excel (2 hours)
│  ├─ Query builder interface
│  ├─ Export results to new workbook
│  └─ Formatted for analysis
│
├─ Export to CSV (2 hours)
│  ├─ Batch export functionality
│  ├─ Custom query support
│  └─ Schedule exports
│
└─ Report Generator (2 hours)
   ├─ Pre-built report templates
   ├─ Cost summaries by plan
```

```
   ├─ Material usage reports
   └─ Price comparison reports

Output: Full export toolkit
```

Wednesday-Thursday (Jan 22-23) - 4 hours
```
Enhanced Documentation
├─ User Guide (2 hours)
│  ├─ How to use each tool
│  ├─ Common workflows
│  ├─ Troubleshooting
│  └─ FAQ
│
└─ Technical Documentation (2 hours)
   ├─ Database schema explained
   ├─ Table relationships diagram
   ├─ Coding standards reference
   ├─ Import procedures
   └─ Maintenance guide

Output: Comprehensive documentation
```

Friday (Jan 24) - 2 hours
```
Additional Features (based on feedback)
├─ Priority enhancements (1.5 hours)
│  └─ From user testing feedback
│
└─ Week 11 checkpoint (0.5 hours)
   ├─ Review all tools
   ├─ Prepare for testing phase
   └─ Create testing checklist

Deliverables:
☑ Export tools functional
☑ Documentation complete
☑ Additional features added
☑ Week 11 complete! 🎉
```

WEEK 12 (Jan 27-31): Testing & Sign-Off
Total: 12 hours

Monday-Tuesday (Jan 27-28) - 6 hours
```
```

```
Comprehensive Testing
├─ Functional Testing (2 hours)
│  ├─ Test all tools end-to-end
│  ├─ Verify all workflows
│  ├─ Check error handling
│  └─ Document test results
│
├─ Data Validation Testing (2 hours)
│  ├─ Verify data integrity
│  ├─ Check all counts
│  ├─ Test pricing accuracy
│  └─ Validate relationships
│
└─ Performance Testing (2 hours)
   ├─ Query response times
   ├─ Tool load times
   ├─ Large dataset handling
   └─ Document benchmarks

Output: Complete test results
```

Wednesday (Jan 29) - 3 hours
```
User Acceptance Testing (UAT)
├─ William UAT - Richmond (1.5 hours)
│  ├─ Test real workflows
│  ├─ Validate accuracy
│  └─ Sign-off or feedback
│
└─ Alicia UAT - Holt (1.5 hours)
   ├─ Test real workflows
   ├─ Validate accuracy
   └─ Sign-off or feedback

Output: UAT sign-off or issue list
```

Thursday (Jan 30) - 2 hours
```
Bug Fixes & Final Adjustments
├─ Fix any critical bugs (1 hour)
├─ Make final adjustments (0.5 hours)
└─ Retest if needed (0.5 hours)

Output: All critical issues resolved
```

Friday (Jan 31) - 1 hour
```
```

```
Production Sign-Off
├─ Final review (0.25 hours)
│  ├─ All deliverables complete
│  ├─ All tests passed
│  └─ Team trained
│
├─ Create handoff documentation (0.5 hours)
│  ├─ System overview
│  ├─ Support procedures
│  ├─ Maintenance schedule
│  └─ Contact information
│
└─ Project completion (0.25 hours)
   ├─ Celebrate success! 🎉
   ├─ Document lessons learned
   └─ Plan ongoing support

Deliverables:
☑ All tests passed
☑ UAT sign-off complete
☑ Bugs fixed
☑ Documentation finalized
☑ Team trained
☑ Production-ready system
☑ Week 12 complete! 🎊
☑ PROJECT COMPLETE! 🎉

Project Success Criteria:
✓ All 44 Richmond plans + 47 Holt plans active
✓ 65,000+ materials in unified system
✓ Database operational
✓ Excel tools working
✓ Pricing data current
✓ Zero critical bugs
✓ <5% data error rate
✓ Team trained and confident
✓ Documentation complete
✓ MERGER READY! 🚀
```

📈 PROGRESS TRACKING

Weekly Checkpoint Template

```markdown
# Week [X] Checkpoint - [Date]

## Planned vs Actual
```

- Hours Planned: [X]
- Hours Actual: [X]
- Variance: [X]

Deliverables Status
- [ ] Deliverable 1
- [ ] Deliverable 2
- [ ] Deliverable 3

Accomplishments
-
-
-

Challenges Encountered
-
-

Next Week Preview
-
-

Risk Updates
-

Team Feedback
-
```

### Overall Project Metrics

**Time Investment:**
```
Phase 1 (Weeks 1-4): 52 hours
Phase 2 (Weeks 5-8): 32 hours
Phase 3 (Weeks 9-12): 64 hours
Total: 148 hours (12.3 hours/week)
```

**Content Metrics:**
```
Richmond Plans: 44 total
Holt Plans: 50 total
Total Plans: 94
Material Line Items: 64,977
Unique SKUs: ~700+
Database Tables: 10 core + 11 supporting = 21 total
```

**Quality Targets:**
```

```
Data Accuracy: >95%
Query Response: <1 second
Tool Load Time: <5 seconds
User Satisfaction: >80% positive
Pricing Errors: 0 (zero tolerance)
```

⚠ RISK MANAGEMENT

Top Risks & Mitigation

1. Architecture Decisions Wrong
```
Impact: HIGH (4-6 weeks rework)
Probability: LOW (with Week 1 process)
Status: Mitigated by:
├─ Tuesday's thorough decision process
├─ Real data testing
├─ Team validation Friday
├─ Small pilot in Week 2
└─ Buffer time in schedule
```

2. File Size Growth
```
Impact: MEDIUM (performance issues)
Probability: HIGH (inevitable with data growth)
Current Status: Monitored
Mitigation:
├─ Database migration (Weeks 9-10)
├─ Weekly file size monitoring
├─ Compress/archive old data
└─ SharePoint or SQL fallback
Trigger: File >100 MB
```

3. Team Adoption
```
Impact: HIGH (wasted effort if unused)
Probability: LOW (team involved throughout)
Mitigation:
├─ Weekly involvement (Week 1 validation, etc.)
├─ Regular demos of new features
├─ Make new way easier than old
├─ Celebrate wins publicly
└─ Manager support secured
```

4. Data Quality Issues
```
Impact: MEDIUM (errors in database)
Probability: MEDIUM (65K records)
Mitigation:
├─ Validation scripts (Week 2)
├─ Small batch testing first
├─ Incremental imports with validation
├─ Manual spot-checks
├─ Team data review
└─ Rollback procedures ready
```

5. Merger Timeline Acceleration
```
Impact: HIGH (incomplete system)
Probability: MEDIUM (corporate changes)
Mitigation:
├─ Prioritize Weeks 1-8 (core functionality)
├─ MVP checkpoint at Week 8 (100% plans)
├─ Weeks 9-12 can compress if needed
├─ Communicate progress regularly
└─ Document MVP vs nice-to-have
```

6. Richmond Structure Unknown
```
Impact: MEDIUM (updater rework)
Probability: LOW (Week 1 Day 1 audit)
Status: Mitigated
Mitigation:
├─ Monday audit complete ☑
├─ Document actual vs assumed
├─ Build updater incrementally
├─ Test on copy first
└─ Buffer time in Week 2
```

📞 SUPPORT & ESCALATION

Team Contacts

Richmond Expertise:
```
Contact: William Hatley (Inside Sales)
Topics:
├─ Item numbering decisions
```

```
├─ Plan usage priorities
├─ Price level validation
└─ Richmond workflows
Availability: Week 1 Friday, ongoing as needed
```

Holt Expertise:
```
Contact: Alicia Vandehey (Administrative Support)
Topics:
├─ Community mappings
├─ Plan Index accuracy
├─ Holt workflows
└─ Current processes
Availability: Week 1 Friday, ongoing as needed
```

Manager:
```
Contact: Dave Templeton (assumed)
Topics:
├─ Resource allocation
├─ Timeline approvals
├─ Strategic decisions
└─ Merger readiness
Escalation: As needed for major decisions
```

Decision Authority Matrix

Corey Decides:
- Technical implementation details
- Tool feature priorities
- Testing procedures
- Daily work schedule
- Database design specifics

Team Input Required:
- Coding standards (Week 1 Friday)
- Table naming convention (Week 3)
- Formatting theme (Week 9)
- UAT validation (Week 12)
- Feature prioritization

Manager Approval Required:
- Database strategy (Week 9)
- Major timeline changes (>1 week)
- Additional resource needs
- Merger readiness sign-off (Week 12)

☑ SUCCESS CRITERIA

Weekly Success Indicators

Week 1: Architecture locked, team aligned
Week 2: Pricing tools operational both builders
Week 3: Standardization complete
Week 4: Foundation solid, ready for imports
Week 5: First imports successful
Week 6: Import momentum building
Week 7: Most plans complete
Week 8: 100% plan coverage achieved
Week 9-10: Database operational, tools working
Week 11: Documentation complete, enhancements done
Week 12: All tests passed, production ready

Final Success Criteria

Technical:
```
✓ All systems standardized
✓ All tools working correctly
✓ All plans imported (100%)
✓ Database operational
✓ All tests passed
✓ Zero critical bugs
✓ <5% data error rate
✓ Performance meets targets
```

Operational:
```
✓ Team trained on new system
✓ Material orders <2 minutes (from 15-20)
✓ Price lookups instant (from 5-10 min)
✓ Both builders using daily
✓ Documentation complete and accessible
✓ Backup procedures in place
✓ Support process defined
```

Strategic:
```
✓ Merger-ready system delivered
✓ 8 weeks production testing window
✓ Scalable for Manor Homes
✓ Knowledge transfer complete
✓ No single points of failure
```

✓ Sustainable long-term
✓ Competitive advantage realized
```

---

## 💰 RETURN ON INVESTMENT

### Time Savings Analysis

**Current Manual Process Times:**
```
Material order creation: 15-20 minutes
Price lookup: 5-10 minutes per item
Plan comparison: 30-60 minutes
Price update: 30 minutes per update
Cross-plan queries: 1-2 hours (or impossible)
Data inconsistency fixes: 2-4 hours/week
```

**New Database System Times:**
```
Material order creation: 2-3 minutes (85% reduction)
Price lookup: <10 seconds (95% reduction)
Plan comparison: 2 minutes (95% reduction)
Price update: 5 minutes (85% reduction)
Cross-plan queries: Seconds (new capability)
Data inconsistency: Eliminated (single source)
```

**Annual Value Calculation:**
```
Material orders: 2-3/day × 17 min saved × 250 days = 213 hours/year
Price lookups: 10/day × 9 min saved × 250 days = 375 hours/year
Plan comparisons: 2/week × 43 min saved × 50 weeks = 72 hours/year
Price updates: 12/year × 25 min saved = 5 hours/year
Data fixes: 3 hours/week × 50 weeks = 150 hours/year
TOTAL: 815 hours/year saved

At $40/hour blended rate: $32,600/year
Over 3 years: $97,800
```

**Project Investment:**
```
148 hours × $40/hour = $5,920
Payback Period: 2 weeks
3-Year ROI: 1,552%
```
```

Intangible Benefits:
```
├─ Merger readiness (priceless)
├─ Knowledge preservation
├─ Team capability growth
├─ Competitive advantage
├─ Reduced errors and rework
├─ Faster decision-making
├─ Better customer service
└─ Scalability for growth
```

📑 DOCUMENT HIERARCHY

This Master Plan is Authoritative For:
- Overall timeline and phases
- Week-by-week task breakdown
- Hour estimates and resource allocation
- Success criteria and metrics
- Risk management strategy
- Team roles and responsibilities

Supporting Documents:

Daily Execution:
- 03_FOUNDATION_GUIDE.md (Week 1 detailed guide)
- Richmond_Import_Checklist.md (Weeks 5-8 daily tasks)
- Table_Inventory_Template.md (Week 3 work)

Technical Reference:
- 04_CODING_STANDARDS.md (Architecture decisions)
- 05_REFERENCE_DATA.md (Analysis findings)
- schema_design_v1.sql (Database structure)

Quick Reference:
- 01_PROJECT_OVERVIEW.md (Project context)
- README.md (Navigation entry point)
- MIGRATION_MAP.md (What changed in v2.0)

When Documents Conflict:

Precedence Order:
1. This Master Plan (02_MASTER_PLAN.md)
2. Your direct observations of BAT files
3. Team knowledge (William/Alicia input)
4. Supporting technical documentation

If conflict found: Note in weekly checkpoint, update this Master Plan

---

📝 VERSION HISTORY

Version 2.0 - November 10, 2025
- Enhanced Week 1 with architecture decision day (Tuesday)
- Added Monday's completed work
- Clarified import groupings (35 new + 9 existing = 44 total)
- Added Prism SQL migration strategy
- Improved task breakdowns with time estimates
- Added detailed deliverables for each day
- Enhanced risk mitigation strategies
- Consolidated from BAT_MASTER_PLAN_INTEGRATED.md

Version 1.0 - November 9, 2025
- Original integrated master plan
- 12-week timeline established
- Phase structure defined

🎯 IMMEDIATE NEXT STEPS

Current Status: Week 1, Tuesday (Nov 12) 🟢

Today's Priority: Architecture Decisions (6 hours)

What You Need:
- ☑ Monday's analysis complete (item_numbering_patterns.txt, richmond_structure.txt)
- ☑ Both BAT files accessible
- ☑ Material databases available
- ☑ 6 hours blocked on calendar
- ☑ William available for questions
- ⏳ Ready to make critical decisions

Today's Agenda:
1. **Session 1 (2 hours):** Map Richmond & Holt hierarchies
2. **Session 2 (2 hours):** Make 3 architecture decisions
3. **Session 3 (2 hours):** Design database schema

Critical: These decisions determine project success. Take time to get them right.

Tomorrow: Draft coding standards based on today's decisions
Friday: Team validation with William and Alicia

🎉 FINAL MOTIVATION

Why This Will Succeed

Strong Foundation:
☑ Monday's 45-page analysis complete
☑ Real data examined (746 items, 94 plans)
☑ Problems identified and documented
☑ Tuesday's architecture process designed

Clear Execution Plan:
☑ 12-week timeline with 8-week buffer
☑ Weekly deliverables defined
☑ Success criteria at every checkpoint
☑ Risks identified and mitigated

Right Technology:
☑ SQLite → Prism SQL migration path
☑ Python for automation
☑ Excel for familiar interface
☑ Standard SQL for queries

Team Commitment:
☑ William & Alicia involved (Week 1 Friday)
☑ Addresses real pain points
☑ Significant time savings proven
☑ March 2026 merger creates urgency

You've Got This! 💪

This Master Plan is your roadmap.
Follow it week by week.
Adjust as needed, but keep the end goal clear.
By February 28, you'll have a unified, merger-ready system.

Let's build something amazing! 🚀

Document Owner: Corey Boser
Last Updated: November 10, 2025
Next Review: After Week 1 completion
Status: Active - Primary Execution Guide

Ready? Today is Tuesday. Time for architecture decisions. →
See 03_FOUNDATION_GUIDE.md for detailed Tuesday session guide