MACQUARIE University

Faculty of Science and Engineering

DEPARTMENT OF COMPUTING

Semester 1, 2025

ASSIGNMENT ONE - Strategic Technology

Project Management for F1 Alpine Team

47814403: Gino Sunny

COMP8770: Information Systems Project and Risk Management

1. Introduction 4

2. Work Breakdown Structure (WBS) 5

2.1. Project Phases Overview 5

2.2. Project Milestones 7

3. Time & Resource Allocation (Gantt Overview) 8

3.1 Time Allocation 9

3.2. Resource Allocation 13

3.2.1. Work Resources 13

3.2.2 Cost Resources 15

3.2.3 Material Resources 15

4. Network Diagram & Critical Path 16

4.1. Critical Tasks 16

4.2. Critical Path with Milestones 17

4.3. Critical Path without Milestones 18

4.4. Network Diagram 18

5. Task Predecessors Overview 20

7. Tracking Gantt & Free Slack Analysis 22

8. Project Expenditure Breakdown 23

8.1 Cost Resources 25

8.2 Material Resources 27

8.3 Work Resources 28

9. Project Risks 31

9.1. Risk Response Strategy 32

10. Relevance of PRINCE2 Project Management 33

11. Conclusion 35

12. Bibliography 36

13. Appendices 39

1. Introduction

In Formula 1, precision, efficiency, and strategic planning are critical, hence, an effective project plan is essential to ensure all pre-race preparations are completed on schedule. The Alpine F1 team must carefully coordinate multiple dependent activities, from car development, testing and logistics to marketing and media operations, in preparation for the Melbourne Grand Prix 2025. The Melbourne Grand Prix, scheduled for the weekend of 14-17 March 2025, is a critical event in the Formula 1 calendar and requires precise coordination of engineering, logistics, personnel, and race operations. This project aims to ensure that all technical and operational preparations are completed on time, within budget, and in alignment with race regulations and team objectives. The plan is designed to reflect realistic operations of Alpine F1 team, with a workforce of approximately 800-900 personnel and a season-wide budget benchmarked at around $200 million USD.

This report presents a high-level project plan for the Alpine F1 team, outlining key tasks, timelines, resource allocations, and risk assessments necessary for a successful race weekend. The project plan follows established project management methodologies, including Gantt charts, WBS and network diagrams, to ensure optimal scheduling and resource distribution. Additionally, it incorporates risk assessment strategies to mitigate potential disruptions, such as delays in car preparation or logistical challenges. Furthermore, this report considers the principles of structured project management frameworks such as PRINCE2, which emphasize clear planning, defined roles, and efficient risk management and discusses how these methodologies are particularly relevant in high-stakes environments like Formula 1, where seamless coordination is essential.

2. Work Breakdown Structure (WBS)

The Melbourne 2025 Grand Prix Preparation Project Plan spans a duration of 77 days, starting on Sunday December 15, 2024, and concluding on Tuesday March 18, 2025. The project is structured into distinct phases, each representing a key area of race preparation. A total of 30 tasks (T1-T30) and 7 milestones (M1-M7) Figure 1, have been defined to cover all planning, engineering, testing, logistics, and race-related activities.

2.1. Project Phases Overview

- **Initial Planning (T1-T6):** This phase covers strategic discussions, resource and schedule planning, logistics planning, risk assessment and contingency planning and finalizing car specifications.
- **Car Preparation (T7-T12):** This phase includes procurement of long-lead components, chassis and aerodynamic part manufacturing, full assembly of car systems, and initial system testing.
- **Testing & Adjustments (T13-T16):** This phase involves the shakedown run, official pre-season testing, data analysis, and final updates to the car setup to ensure performance optimization.
- **Final Preparations (T17-T19):** This phase covers final quality control checks, shipment of the car and equipment, and driver briefings before the team departs for the Melbourne venue.
- **Race Week (T20-T24):** This phase deals with the execution of logistical operations including equipment arrival, setup at Albert Park, crew deployment, and media engagements.
- **Race Weekend (T25-T28):** Activities include FIA scrutineering, free practice sessions, qualifying, and the main Grand Prix event on Sunday.
- **Post-Race Logistics & Closeout (T29-T230):** After the race concludes, the team begins packing up and transitioning to the next event while final documentation and change management tasks are completed.

The detailed Work Breakdown Structure (WBS), including ID, task ID, task type, and task name is presented in Table 1 below.

ID	Task ID	Task Type	Task Name
1	**ST1**	**Summary Task**	**Melbourne 2025 Grand Prix Preparation Project Plan**
2	**ST2**	**Summary Task**	**Initial Planning**
3	T1	Task	Project Kickoff Meeting
4	T2	Task	Define Race Objectives & Strategy
5	T3	Task	Resource & Schedule Planning
6	T4	Task	Plan Travel & Freight Logistics
7	T5	Task	Finalize Car Design & Specifications
8	T6	Task	Risk Assessment & Contingency Planning
9	**M1**	**Milestone**	**Milestone: Initial Planning Complete [M]**
10	**ST3**	**Summary Task**	**Car Preparation**
11	T7	Task	Procure Long-Lead Parts & Materials
12	T8	Task	Fabricate Chassis & Monocoque
13	T9	Task	Manufacture Aerodynamic and Mechanical Components
14	T10	Task	Assemble Chassis, Engine & Drivetrain
15	T11	Task	Install Electronics & Bodywork
16	T12	Task	Initial Cars Fire-Up & System Test
17	**M2**	**Milestone**	**Milestone: Car Ready for Testing [M]**
18	**ST4**	**Summary Task**	**Testing & Adjustments**
19	T13	Task	Filming Day Shakedown (Initial Run)
20	T14	Task	Pre-Season Testing (Official Test)
21	T15	Task	Analyze Test Data & Identify Adjustments
22	T16	Task	Implement Final Car Updates
23	**M3**	**Milestone**	**Milestone: Car Testing Complete [M]**
24	**ST5**	**Summary Task**	**Final Preparations**
25	T17	Task	Final Inspection & Quality Check
26	**M4**	**Milestone**	**Milestone: Final Car Check Complete [M]**
27	T18	Task	Pack Cars & Equipment for Shipment (Air & Sea Freight)
28	T19	Task	Driver Preparation & Briefings
29	**M5**	**Milestone**	**Milestone: Final Preparations Completed [M]**
30	**ST6**	**Summary Task**	**Race Week**

31	T20	Task	Freight Transportation & Emergency Shipments
32	T21	Task	Advance Crew Deployment & Initial Setup
33	T22	Task	Personnel Arrival & Final Deliveries
34	T23	Task	Garage Build-Out & Facility Completion (Albert Park)
35	T24	Task	Pre-race media and PR activities (Driver Photoshoots)
36	**M6**	**Milestone**	**Milestone: Pre Race Activities Done [M]**
37	**ST7**	**Summary Task**	**Race Weekend**
38	T25	Task	Car Scrutineering (FIA inspection)
39	T26	Task	Free Practice Sessions (Friday, FP1 & FP2)
40	T27	Task	Free Practice 3 & Qualifying (Saturday)
41	T28	Task	Melbourne Grand Prix Race Start @3pm
42	**M7**	**Milestone**	**Milestone: Melbourne Grand Prix Race Ends [M]**
43	**ST8**	**Summary Task**	**Post-Race Logistics**
44	T29	Task	Pack-Up & Transition to Shanghai
45	**ST9**	**Summary Task**	**Close Project**
46	T30	Task	Change Management and User Documentation

Table 1: Work Breakdown Structure (WBS)

2.2. Project Milestones

- **M1-Initial Planning Complete:** Marks the end of the strategic and logistical planning phase.
- **M2-Car Ready for Testing:** Confirms completion of car production and system verification.
- **M3-Car Testing Complete:** All performance validation and final updates are finished.
- **M4-Final Car Check Complete:** Final inspections and regulatory checks are approved.
- **M5-Final Preparations Completed:** Team, car, and equipment are ready for deployment.
- **M6-Pre-Race Activities Done:** Trackside operations, logistics, and PR events are fully completed at the venue.
- **M7-Melbourne Grand Prix Race Ends:** Main event is concluded, and the team transitions to post-race activities.

Name	Finish
Milestone: Initial Planning Complete [M]	Sat 12/28/24
Milestone: Car Ready for Testing [M]	Sat 2/15/25
Milestone: Car Testing Complete [M]	Sun 3/2/25
Milestone: Final Car Check Complete [M]	Wed 3/5/25
Milestone: Final Preparations Completed [M]	Fri 3/7/25
Milestone: Pre Race Activities Done [M]	Wed 3/12/25
Milestone: Melbourne Grand Prix Race Ends [M]	Sun 3/16/25

Figure 1: Project Milestones

3. Time & Resource Allocation (Gantt Overview)

The following Gantt chart outlines the detailed time and resource allocation across all project tasks. It presents a structured overview of how human, technical, and logistical resources are distributed across phases. Figure 2 below presents the Gantt chart in tabular form, including Task ID, Name, Duration, Start and Finish dates, Predecessors, Assigned Resources, and Costs per task and phase.

ID	Task ID	Task Name	Duration	Start	Finish	Predecessors	Cost	Resource Names
1	**ST1**	**Melbourne 2025 Grand Prix Preparation Project Plan**	**77 days**	**Sun 12/15/24**	**Tue 3/18/25**		**$10,107,834.76**	**Administrative overheads[$250,000.00],Cloud Computing[$50,000.00],Communication Systems[$100,000.00],Compliance overheads (legal)[$250,000.00],Data Analytics[$300,000.00],Factories (operations cost)[$100,000.00],GPS Tracking[$50,000.00],Offices[$50,000.00],Partnerships and Suppliers[$500,000.00],Simulation Software[$200,000.00],Simulation Tools[$150,000.00],Suppliers (sponsorship)[$250,000.00],Telemetry Systems [$150,000.00],Telemetry Systems Hardware[$200,000.00],Virtual Reality (VR)[$50,000.00],Wearable Technology[$50,000.00],Wind Tunnels[$400,000.00],Workshops[$100,000.00],Artificial Intelligence (AI)[$200,000.00],Technical Partners[$650,000.00]**
2	**ST2**	**Initial Planning**	**12 days**	**Sun 12/15/24**	**Sat 12/28/24**		**$554,720.00**	
3	T1	Project Kickoff Meeting	1 day	Sun 12/15/24	Sun 12/15/24		$3,760.00	Project Manager,Sporting Director,Team Principal
4	T2	Define Race Objectives & Strategy	3 days	Mon 12/16/24	Wed 12/18/24	3	$52,320.00	Performance Engineers,Sporting Director,Strategists,Team Principal
5	T3	Resource & Schedule Planning	6 days	Mon 12/16/24	Tue 12/24/24	3	$6,480.00	Project Manager,Technical Director
6	T4	Plan Travel & Freight Logistics	4 days	Mon 12/16/24	Thu 12/19/24	3	$27,840.00	Logistics Coordinators,Team Logistics Manager,Project Manager
7	T5	Finalize Car Design & Specifications	8 days	Thu 12/19/24	Sat 12/28/24	4	$457,600.00	Aerodynamicists,Chief Engineers,Electrical Engineers,Mechanical Engineers
8	T6	Risk Assessment & Contingency Planning	2 days	Wed 12/25/24	Thu 12/26/24	4,5	$6,720.00	Chief Engineers,Project Manager,Technical Director
9	**M1**	**Milestone: Initial Planning Complete [M]**	**0 days**	**Sat 12/28/24**	**Sat 12/28/24**	**5,7,6,8**	**$0.00**	
10	**ST3**	**Car Preparation**	**36 days**	**Mon 12/30/24**	**Sat 2/15/25**		**$3,302,000.00**	**Car Components[1]**
11	T7	Procure Long-Lead Parts & Materials	10 days	Mon 12/30/24	Fri 1/10/25	9	$9,600.00	Project Manager
12	T8	Fabricate Chassis & Monocoque	15 days	Mon 1/13/25	Fri 1/31/25	11	$300,000.00	Manufacturing Technicians,Quality Control
13	T9	Manufacture Aerodynamic and Mechanical Components	12 days	Mon 1/13/25	Tue 1/28/25	11	$600,000.00	Aerodynamicists,Manufacturing Technicians,Mechanical Engineers
14	T10	Assemble Chassis, Engine & Drivetrain	3 days	Mon 2/3/25	Mon 2/10/25	12,13	$1,938,000.00	Electrical Engineers,Mechanical Engineers,Mechanics,Renault Power Unit Supplier[$1,800,000.00]
15	T11	Install Electronics & Bodywork	3 days	Tue 2/11/25	Thu 2/13/25	14	$180,000.00	Electrical Engineers,Mechanical Engineers,Mechanics,Software Engineers
16	T12	Initial Cars Fire-Up & System Test	2 days	Fri 2/14/25	Sat 2/15/25	15	$74,400.00	Chief Engineers,Race Drivers,Race Engineers,Electrical Engineers,Software Engineers
17	**M2**	**Milestone: Car Ready for Testing [M]**	**0 days**	**Sat 2/15/25**	**Sat 2/15/25**	**16**	**$0.00**	
18	**ST4**	**Testing & Adjustments**	**13 days**	**Mon 2/17/25**	**Sun 3/2/25**		**$431,800.00**	
19	T13	Filming Day Shakedown (Initial Run)	1 day	Mon 2/17/25	Mon 2/17/25	17	$35,000.00	Mechanics[50%],Pit Crew,Race Drivers,Race Engineers,Marketing Team[80%],Media and PR[80%]
20	T14	Pre-Season Testing (Official Test)	4 days	Mon 2/17/25	Fri 2/21/25	19	$86,400.00	Data Analysts[80%],Pit Crew,Race Drivers[200%],Race Engineers[400%]
21	T15	Analyze Test Data & Identify Adjustments	4 days	Sat 2/22/25	Wed 2/26/25	20	$194,400.00	Aerodynamicists[200%],Data Analysts[80%],Performance Engineers
22	T16	Implement Final Car Updates	4 days	Thu 2/27/25	Sun 3/2/25	21	$116,000.00	Aerodynamicists[50%],Mechanics[50%],Software Engineers
23	**M3**	**Milestone: Car Testing Complete [M]**	**0 days**	**Sun 3/2/25**	**Sun 3/2/25**	**22**	**$0.00**	
24	**ST5**	**Final Preparations**	**5 days**	**Mon 3/3/25**	**Fri 3/7/25**		**$179,600.00**	**Logistical Resources[$100,000.00]**
25	T17	Final Inspection & Quality Check	3 days	Mon 3/3/25	Wed 3/5/25	23	$33,600.00	Chief Engineers,Quality Control
26	**M4**	**Milestone: Final Car Check Complete [M]**	**0 days**	**Wed 3/5/25**	**Wed 3/5/25**	**25**	**$0.00**	
27	T18	Pack Cars & Equipments for Shipment (Air & Sea Freight)	2 days	Wed 3/5/25	Thu 3/6/25	26	$34,000.00	Mechanics[50%],Event Support Staff,Ground Staff
28	T19	Driver Preparation & Briefings	2 days	Thu 3/6/25	Fri 3/7/25	26	$12,000.00	Race Drivers,Race Engineers
29	**M5**	**Milestone: Final Preparations Completed [M]**	**0 days**	**Fri 3/7/25**	**Fri 3/7/25**	**27,28**	**$0.00**	
30	**ST6**	**Race Week**	**9 days**	**Fri 3/7/25**	**Sun 3/16/25**		**$1,409,794.76**	**Pit Equipment & consumables[1]**
31	T20	Freight Transportation & Emergency Shipments	3 days	Fri 3/7/25	Sun 3/9/25	29	$165,000.00	Transport Vehicles[$150,000.00],Ground Staff[50%],Event Support Staff
32	T21	Advance Crew Deployment & Initial Setup	3 days	Fri 3/7/25	Sun 3/9/25	29	$22,571.43	Ground Staff,Event Support Staff
33	T22	Personnel Arrival & Final Deliveries	2 days	Fri 3/7/25	Sat 3/8/25	29	$128,000.00	Travel Expenses[$120,000.00],Ground Staff[67%],Logistics Coordinators[67%]
34	T23	Garage Build-Out & Facility Completion (Albert Park)	4 days	Sun 3/9/25	Tue 3/11/25	32,31,33	$101,250.00	Mechanics,Pit Crew,Base Facilities (garage)[$37,500.00],Ground Staff
35	T24	Pre-race media and PR activities (Driver Photoshoots)	1 day	Wed 3/12/25	Wed 3/12/25	34	$21,200.00	Marketing Team,Media and PR,Race Drivers
36	**M6**	**Milestone: Pre Race Activities Done [M]**	**0 days**	**Wed 3/12/25**	**Wed 3/12/25**	**35**	**$0.00**	
37	**ST7**	**Race Weekend**	**4 days**	**Thu 3/13/25**	**Sun 3/16/25**		**$871,773.33**	**Race Weekend Consumables[1],Trackside Operational Costs[$500,000.00]**
38	T25	Car Scrutineering (FIA inspection)	1 day	Thu 3/13/25	Thu 3/13/25	36	$1,000.00	Race Engineers[50%],Technical Director[50%]
39	T26	Free Practice Sessions (Friday, FP1 & FP2)	1 day	Fri 3/14/25	Fri 3/14/25	38	$25,600.00	Data Analysts[80%],Mechanics,Race Drivers,Race Engineers
40	T27	Free Practice 3 & Qualifying (Saturday)	1 day	Sat 3/15/25	Sat 3/15/25	39	$24,640.00	Mechanics,Pit Crew,Race Drivers,Race Engineers,Strategists
41	T28	Melbourne Grand Prix Race Start @3pm	1 day	Sun 3/16/25	Sun 3/16/25	40	$20,533.33	Mechanics[83%],Pit Crew[83%],Race Drivers[83%],Race Engineers[83%],Strategists[83%]
42	**M7**	**Milestone: Melbourne Grand Prix Race Ends [M]**	**0 days**	**Sun 3/16/25**	**Sun 3/16/25**	**41**	**$0.00**	
43	**ST8**	**Post-Race Logistics**	**0 days**	**Sun 3/16/25**	**Mon 3/17/25**		**$166,000.00**	
44	T29	Pack-Up & Transition to Shanghai	1 day	Sun 3/16/25	Mon 3/17/25	42	$166,000.00	Logistics Coordinators,Mechanics,Team Logistics Manager,Travel Expenses[$150,000.00]
45	**ST9**	**Close Project**	**2 days**	**Mon 3/17/25**	**Tue 3/18/25**		**$13,920.00**	
46	T30	Change Management and User Documentation	2 days	Mon 3/17/25	Tue 3/18/25	42	$13,920.00	Administrative Staff,Project Manager

Figure 2: Tabular form of the Gantt Chart

3.1 Time Allocation

F1 race prep follows a rhythm: design → build → test → ship → race. The time estimates assigned to each task in this project are grounded in real-world Formula 1 team operations and align with typical preparation timelines for a race like the Melbourne Grand Prix. Each phase, from initial planning through to post-race logistics, reflects durations for typical F1 teams. These allocations are consistent with industry practices, FIA regulations, and logistics frameworks. While actual team operations may involve some overlap between tasks, the durations used here represent a structured, sequential approach that accurately models the critical path and risk considerations of a high-performance motorsport environment.

1. Initial Planning Phase (12 days)

- **T1: Project Kickoff Meeting (1 day):** One day is standard for conducting a high-level project kickoff, aligning stakeholders, and outlining objectives.
- **T2: Define Race Objectives & Strategy (3 days):** Developing a race strategy requires analysis of past race data, competitor trends, and regulations, justifying a 3-day timeframe.
- **T3: Resource & Schedule Planning (6 days):** Given the complexity and tight dependencies in an F1 operation, resource allocation and schedule development typically take around a week.
- **T4: Plan Travel & Freight Logistics (4 days):** Logistics for transporting personnel and equipment globally must be meticulously coordinated. DHL, F1's official logistics partner, begins planning months in advance, though race-specific prep is condensed.
- **T5: Finalize Car Design & Specifications (8 days):** Finalizing specifications involves integrating multiple engineering disciplines and regulatory compliance checks. It typically takes 1-2 weeks, depending on the complexity of the update.
- **T6: Risk Assessment & Contingency Planning (2 days):** This task involves identifying potential technical, logistical, and operational risks that could impact the Melbourne Grand Prix preparation. A dedicated 2-day window allows the project team to assess internal and external risks, define contingency actions, and integrate mitigation strategies across all phases of the project.

2. Car Preparation Phase (36 days)

- **T7: Procure Long-Lead Parts & Materials (10 days)**: Procurement of bespoke F1 components like composite wings or turbochargers require advanced ordering due to production constraints.
- **T8: Fabricate Chassis & Monocoque (15 days):** Chassis fabrication, involving carbon fiber layup and curing, is labor-intensive and spans multiple days per vehicle.

- **T9: Manufacture Aerodynamic & Mechanical Components (12 days):** Aerodynamic elements must go through wind tunnel and CFD verification, requiring a ~2 week manufacturing and validation cycle.
- **T10: Assemble Chassis, Engine & Drivetrain (3 days):** Assembly integrates power units, suspension, and drivetrain.
- **T11: Install Electronics & Bodywork (3 days):** Wiring looms, telemetry, and body panels are installed once the structure is built, typically taking several working days.
- **T12: Initial Fire-Up & Systems Test (2 days):** The 'fire-up 'and full systems diagnostic occurs over multiple days to resolve engine or hydraulic issues before shakedown.

3. Testing & Adjustments Phase (13 days)

- **T13: Filming Day Shakedown (1 day):** FIA regulations limit shakedown/filming days to 100 km, completed in a single day for system validation.
- **T14: Pre-season Testing (4 days):** Official pre-season testing spans 3-5 days before the first race and is tightly structured by the FIA.
- **T15: Analyze Test Data & Identify Adjustments (4 days):** Performance engineers and strategists require time to review telemetry, wind tunnel correlation, and driver feedback.
- **T16: Implement Final Updates (4 days):** Final car tuning involves hardware swap-outs and software patches, often turned around in less than a week before freight deadlines.

4. Final Preparations Phase (5 days)

- **T17: Final Inspection & Quality Check (3 days):** Quality control ensures car legality, safety, and performance compliance through rigorous checklists.
- **T18: Pack Cars & Equipment (2 days):** Teams require up to 48 hours to dismantle, containerize, and prepare parts for shipment, especially for flyaway races.
- **T19: Driver Prep & Briefings (2 days):** Includes physical prep, simulator runs, and strategy meetings, typically 1-2 days before race week.

5. Race Week Phase (9 days)

- **T20–T22: Freight & Crew Arrival (2-3 days each):** Cargo arrives 5-6 days before race weekend. DHL and F1 execute staged arrivals for efficiency.
- **T23: Garage & Facility Setup (4 days):** Building out pit walls, data centers, and hospitality takes 3-4 days at temporary circuits like Albert Park.
- **T24: Media & PR Activities (1 day):** Media Day, including driver press and photoshoots, is a single day FIA regulated event.

6. Race Weekend (4 days)

- **T25-T28: FIA Inspection, Practice, Qualifying, Race (1 day each)**
  Standard Grand Prix format:
  Thursday: Scrutineering
  Friday: FP1 & FP2
  Saturday: FP3 & Qualifying
  Sunday: Race
  All are fixed to 1 day per FIA guidelines.

7. Post-Race (1 day)

- **T29: Pack-Up & Transition (1 day):** Equipment must be disassembled and shipped within 36-48 hours post-race to meet next-race logistics.

8. Close Project (2 days)

T30: Change Management & Documentation (2 days): Teams review performance, document changes, and prepare for the next race cycles within 1-2 days post-event.

3.2. Resource Allocation

Resource allocation for the project is based on realistic staffing data from a mid-sized Formula 1 team, such as Alpine, which typically employs 800-900 personnel across functions.

3.2.1. Work Resources

Work resources were assigned to tasks based on their relevance to the activity, availability, and the minimum staffing required to complete tasks within the defined schedule. To reflect real-world F1 team structures, staffing levels were estimated based on a mid-sized team such as Alpine F1, with approximately 800-900 employees across various technical and operational departments.

- **For larger departments with over 10 personnel**, a 1 unit = 25 staff approach was applied. For example, Mechanical Engineers were assigned at a standard rate of $2,500/hr, calculated as $100/hr. (standard rate per hr. per individual) × 25 staff. Similarly, Data Analysts were grouped using the same ratio, with a collective rate of $1,500/hr. (based on $60/hr. per person).
- **Individual roles** such as Race Drivers or the Team Principal were modeled as 1 unit = 1 person, with rates reflecting industry benchmarks. For instance, Race Drivers were assigned at $650/hr., while the Team Principal was set at $200/hr.

Figure 3 below shows the work resources used in the project plan. Resources were allocated to each task according to their specific functions: engineers for car development, logistics personnel for transport phases, and strategists during testing and race operations. Figure 4 below shows that no overallocations were detected, and all assignments respect maximum unit limits defined in the resource sheet. A detailed breakdown of resource costs and their categorization is discussed in the project expenditure breakdown section later in the report.

ID	Resource Name	Type	Group	Max. Units	Std. Rate	Notes	Notes
1	Race Drivers	Work	Race Drivers	200%	$650.00/hr	Single person = 1 unit	Single person = 1 unit
2	Race Engineers	Work	Race Engineers	400%	$100.00/hr	Single person = 1 unit	Single person = 1 unit
4	Aerodynamicists	Work	Engineering and Technical Staff	400%	$2,500.00/hr	1 unit = 25 staff; 25 staff * Std.rate	1 unit = 25 staff; 25 staff * Std.rate
5	Mechanical Engineers	Work	Engineering and Technical Staff	400%	$2,500.00/hr	1 unit = 25 staff; 25 staff * Std.rate	1 unit = 25 staff; 25 staff * Std.rate
6	Electrical Engineers	Work	Engineering and Technical Staff	200%	$2,000.00/hr	1 unit = 25 staff; 25 staff * Std.rate	1 unit = 25 staff; 25 staff * Std.rate
7	Software Engineers	Work	Engineering and Technical Staff	200%	$1,750.00/hr	1 unit = 25 staff; 25 staff * Std.rate	1 unit = 25 staff; 25 staff * Std.rate
8	Data Analysts	Work	Engineering and Technical Staff	100%	$1,500.00/hr	1 unit = 25 staff; 25 staff * Std.rate	1 unit = 25 staff; 25 staff * Std.rate
10	Marketing Team	Work	Marketing and Media	100%	$1,250.00/hr	1 unit = 25 staff; 25 staff * Std.rate	1 unit = 25 staff; 25 staff * Std.rate
11	Media and PR	Work	Marketing and Media	100%	$1,250.00/hr	1 unit = 25 staff; 25 staff * Std.rate	1 unit = 25 staff; 25 staff * Std.rate
13	Manufacturing Technicians	Work	Factory and Production Staff	800%	$1,250.00/hr	1 unit = 25 staff; 25 staff * Std.rate	1 unit = 25 staff; 25 staff * Std.rate
14	Quality Control	Work	Factory and Production Staff	200%	$1,250.00/hr	1 unit = 25 staff; 25 staff * Std.rate	1 unit = 25 staff; 25 staff * Std.rate
16	Team Principal	Work	Management and Leadership	100%	$200.00/hr	Single person = 1 unit	Single person = 1 unit
17	Sporting Director	Work	Management and Leadership	100%	$150.00/hr	Single person = 1 unit	Single person = 1 unit
18	Technical Director	Work	Management and Leadership	100%	$150.00/hr	Single person = 1 unit	Single person = 1 unit
19	Chief Engineers	Work	Management and Leadership	500%	$150.00/hr	Single person = 1 unit	Single person = 1 unit
20	Project Manager	Work	Management and Leadership	100%	$120.00/hr	Single person = 1 unit	Single person = 1 unit
22	Logistics Coordinators	Work	Logistics and Support Staff	100%	$750.00/hr	1 unit = 25 staff; 25 staff * Std.rate	1 unit = 25 staff; 25 staff * Std.rate
23	Event Support Staff	Work	Logistics and Support Staff	100%	$750.00/hr	1 unit = 25 staff; 25 staff * Std.rate	1 unit = 25 staff; 25 staff * Std.rate
24	Ground Staff	Work	Logistics and Support Staff	100%	$750.00/hr	1 unit = 25 staff; 25 staff * Std.rate	1 unit = 25 staff; 25 staff * Std.rate
25	Administrative Staff	Work	Logistics and Support Staff	100%	$750.00/hr	1 unit = 25 staff; 25 staff * Std.rate	1 unit = 25 staff; 25 staff * Std.rate
27	Strategists	Work	Strategy and Performance	1,000%	$80.00/hr	Single person = 1 unit	Single person = 1 unit
28	Performance Engineers	Work	Strategy and Performance	100%	$1,750.00/hr	1 unit = 25 staff; 25 staff * Std.rate	1 unit = 25 staff; 25 staff * Std.rate
30	Mechanics	Work	Mechanics and Pit Crew	100%	$1,250.00/hr	1 unit = 25 staff; 25 staff * Std.rate	1 unit = 25 staff; 25 staff * Std.rate
31	Pit Crew	Work	Mechanics and Pit Crew	100%	$1,000.00/hr	1 unit = 25 staff; 25 staff * Std.rate	1 unit = 25 staff; 25 staff * Std.rate

Figure 3: Work Resources

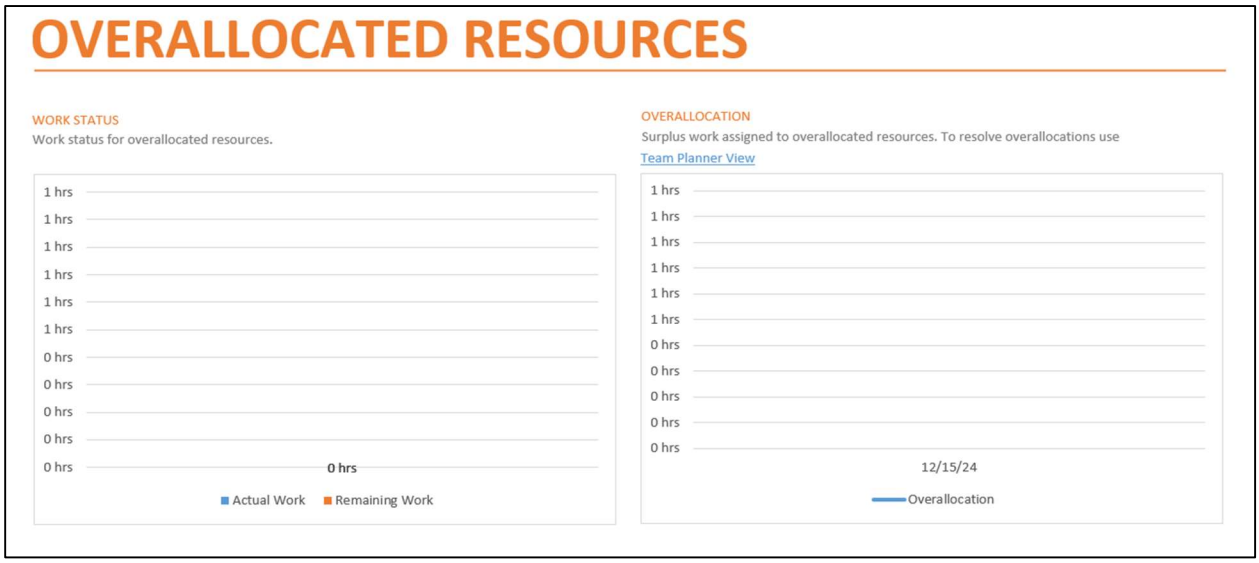


Figure 4: No overallocated resources

3.2.2 Cost Resources

In addition to work resources, the project cost resources like simulation software, telemetry systems, transport vehicles, and administrative overheads. Figure 5 shows the list of cost resources used. A detailed breakdown of resource costs and their categorization is discussed in the project expenditure breakdown section later in the report.

ID	Resource Name	Type	Group
33	Telemetry Systems	Cost	IT Technical Resources
34	Simulation Software	Cost	IT Technical Resources
35	Data Analytics	Cost	IT Technical Resources
36	Virtual Reality (VR)	Cost	IT Technical Resources
37	GPS Tracking	Cost	IT Technical Resources
38	Wearable Technology	Cost	IT Technical Resources
39	Cloud Computing	Cost	IT Technical Resources
40	Artificial Intelligence (AI)	Cost	IT Technical Resources
41	Communication Systems	Cost	IT Technical Resources
44	Simulation Tools	Cost	Car Development and Engineering
45	Telemetry Systems Hardware	Cost	Car Development and Engineering
46	Wind Tunnels	Cost	Car Development and Engineering
47	Renault Power Unit Supplier	Cost	Car Development and Engineering
49	Logistical Resources	Cost	Operations and Logistics Costs
50	Transport Vehicles	Cost	Operations and Logistics Costs
51	Travel Expenses	Cost	Operations and Logistics Costs
52	Base Facilities (garage)	Cost	Operations and Logistics Costs
53	Factories (operations cost)	Cost	Operations and Logistics Costs
54	Workshops	Cost	Operations and Logistics Costs
55	Offices	Cost	Operations and Logistics Costs
57	Partnerships and Suppliers	Cost	Marketing & Sponsorship
58	Technical Partners	Cost	Marketing & Sponsorship
59	Suppliers (sponsorship)	Cost	Marketing & Sponsorship
61	Trackside Operational Costs	Cost	Race Operations
65	Administrative overheads	Cost	Compliance & Administrative
66	Compliance overheads (legal)	Cost	Compliance & Administrative

Figure 5: Cost Resources

3.2.3 Material Resources

In addition to work & cost resources, the project includes material resources such as car components, pit equipment, and race weekend consumables. A detailed breakdown of resource costs and their categorization is discussed in the expenditure section later in the report.

ID	Resource Name	Type	Group	Std. Rate
43	Car Components	Material	Car Development and Engineering	$200,000.00
62	Pit Equipment & consumables	Material	Race Operations	$100,000.00
63	Race Weekend Consumables	Material	Race Operations	$300,000.00

Figure 6: Material Resources

4. Network Diagram & Critical Path

The critical path for the Melbourne Grand Prix Project Plan outlines the longest sequence of dependent tasks that determine the minimum project duration. It represents the set of activities where any delay will directly affect the overall project completion date, making them essential for monitoring and resource prioritization. This path primarily consists of core engineering and race preparation activities such as car design, parts procurement, assembly, testing, logistics coordination, and race weekend track sessions. These tasks are logically sequenced and have zero slack, ensuring the project's timely delivery.

4.1. Critical Tasks

Table 2 below lists the tasks on the critical path as identified in the network diagram.

ID	Task ID	Task Name
Critical: Yes		
3	T1	Project Kickoff Meeting
4	T2	Define Race Objectives & Strategy
7	T5	Finalize Car Design & Specifications
9	**M1**	Milestone: Initial Planning Complete [M]
11	T7	Procure Long-Lead Parts & Materials
12	T8	Fabricate Chassis & Monocoque
14	T10	Assemble Chassis, Engine & Drivetrain
15	T11	Install Electronics & Bodywork
16	T12	Initial Cars Fire-Up & System Test
17	**M2**	Milestone: Car Ready for Testing [M]
19	T13	Filming Day Shakedown (Initial Run)
20	T14	Pre-Season Testing (Official Test)

21	T15	Analyze Test Data & Identify Adjustments
22	T16	Implement Final Car Updates
23	**M3**	Milestone: Car Testing Complete [M]
25	T17	Final Inspection & Quality Check
26	**M4**	Milestone: Final Car Check Complete [M]
28	T19	Driver Preparation & Briefings
29	**M5**	Milestone: Final Preparations Completed [M]
31	T20	Freight Transportation & Emergency Shipments
32	T21	Advance Crew Deployment & Initial Setup
34	T23	Garage Build-Out & Facility Completion (Albert Park)
35	T24	Pre-race media and PR activities (Driver Photoshoots)
36	**M6**	Milestone: Pre Race Activities Done [M]
38	T25	Car Scrutineering (FIA inspection)
39	T26	Free Practice Sessions (Friday, FP1 & FP2)
40	T27	Free Practice 3 & Qualifying (Saturday)
41	T28	Melbourne Grand Prix Race Start @3pm
42	**M7**	Milestone: Melbourne Grand Prix Race Ends [M]
46	T30	Change Management and User Documentation

Table 2: Critical Tasks Based on the Network Diagram

4.2. Critical Path with Milestones

The current critical path includes key project milestones to enhance visibility into phase completions and major deliverables. The full critical path with milestones is as follows:

T1 → T2 → T5 → M1 → T7 → T8 → T10 → T11 → T12 → M2 → T13 → T14 → T15 → T16 → M3 → T17 → M4 → T19 → M5 → T20 → T21 → T23 → T24 → M6 → T25 → T26 → T27 → T28 → M7 → T30

Milestones (M1-M7) are included to improve project management clarity, support stakeholder communication, and highlight key phase completions. While they do not consume time or resources and do not influence scheduling logic directly, they help segment the project and align team focus across phases.

4.3. Critical Path without Milestones

Excluding milestones, the critical path of task-only dependencies is:

T1 → T2 → T5 → T7 → T8 → T10 → T11 → T12 → T13 → T14 → T15 → T16 → T17 → T19 → T20 → T21 → T23 → T24 → T25 → T26 → T27 → T28 → T30

This sequence represents the minimum set of tasks required to reach project completion. Each task is dependent on the timely execution of its predecessor and has zero slack and any delay will directly affect the final project finish date.

The critical path analysis reveals that early planning and car preparation tasks are well-structured with minimal slack, allowing the team to build momentum early in the project. As the schedule approaches race week, the timeline becomes increasingly time-sensitive, with critical tasks concentrated around logistics, venue setup, and regulatory inspections. The inclusion of milestones throughout the plan enhances clarity, supports stakeholder communication, and marks key phase transitions. Overall, the critical path ensures that project management efforts remain focused on high-impact activities, enabling effective risk mitigation, optimal resource allocation, and timely delivery of all requirements for the Melbourne Grand Prix.

4.4. Network Diagram

The following Figures 7 & 8 below show the collapsed view of the complete network diagram. The detailed extended view can be found in Appendix 1.

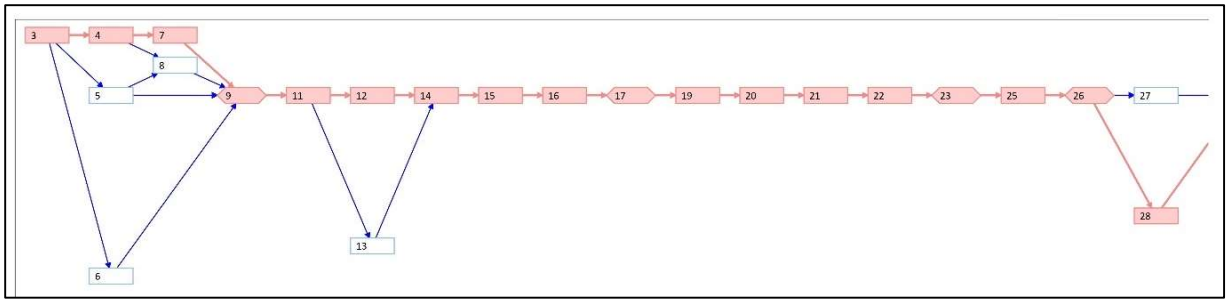


Figure 7: Network Diagram Collapsed View - 1

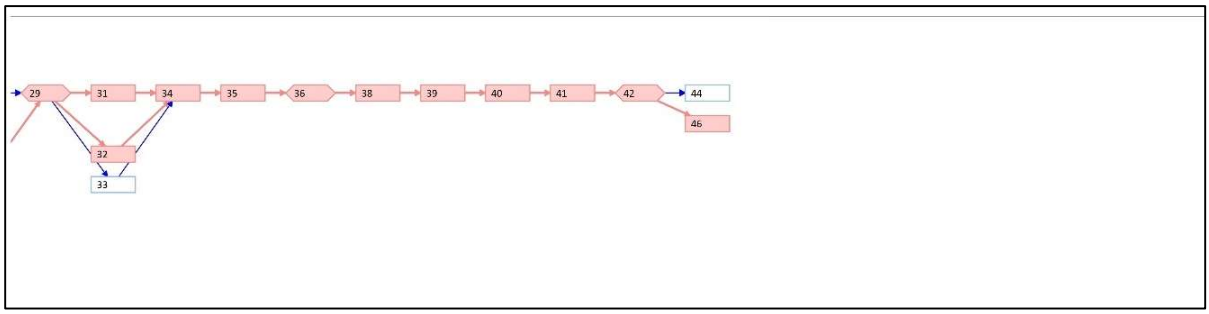


Figure 8: Network Diagram Collapsed View - 2

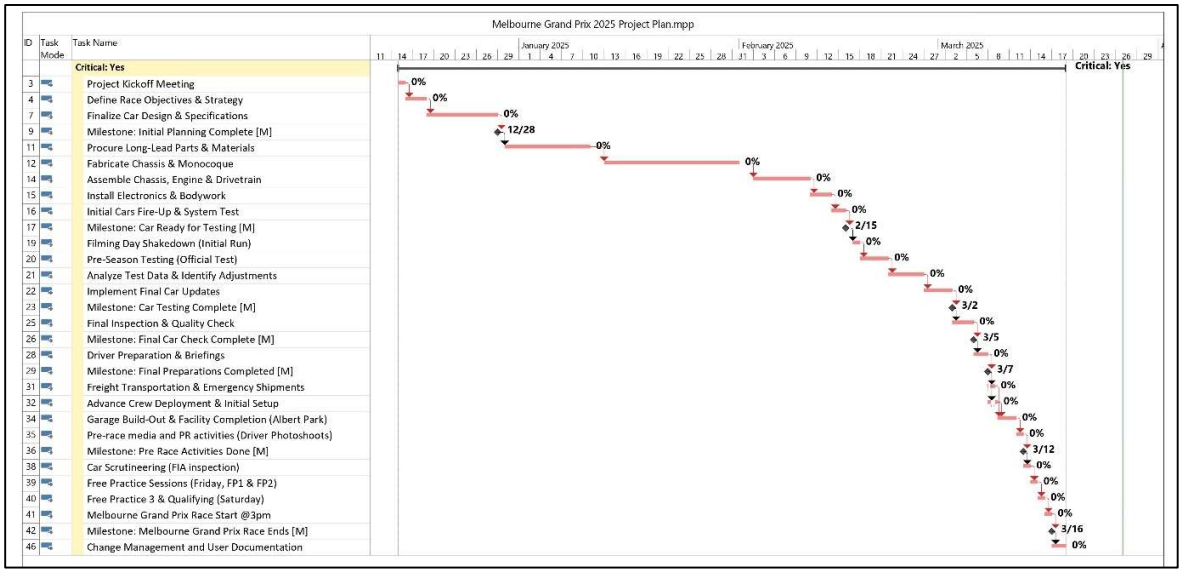


Figure 9: Critical Path

5. Task Predecessors Overview

The following Table 3 outlines the logical sequence of all tasks in the Melbourne Grand Prix project plan. Each task is assigned to a predecessor based on the dependencies necessary to ensure proper execution order. This relationship ensures that no task begins before its required preceding activities are completed, thereby maintaining the project's critical path integrity and minimizing scheduling risks.

ID	Task ID	Task Name	Predecessors
1	**ST1**	**Melbourne 2025 Grand Prix Preparation Project Plan**	
2	**ST2**	**Initial Planning**	
3	T1	Project Kickoff Meeting	
4	T2	Define Race Objectives & Strategy	3
5	T3	Resource & Schedule Planning	3
6	T4	Plan Travel & Freight Logistics	3
7	T5	Finalize Car Design & Specifications	4
8	T6	Risk Assessment & Contingency Planning	4,5
9	**M1**	**Milestone: Initial Planning Complete [M]**	**5,7,6,8**
10	**ST3**	**Car Preparation**	
11	T7	Procure Long-Lead Parts & Materials	9
12	T8	Fabricate Chassis & Monocoque	11
13	T9	Manufacture Aerodynamic and Mechanical Components	11
14	T10	Assemble Chassis, Engine & Drivetrain	12,13
15	T11	Install Electronics & Bodywork	14

16	T12	Initial Cars Fire-Up & System Test	15
17	**M2**	**Milestone: Car Ready for Testing [M]**	**16**
18	**ST4**	**Testing & Adjustments**	
19	T13	Filming Day Shakedown (Initial Run)	17
20	T14	Pre-Season Testing (Official Test)	19
21	T15	Analyze Test Data & Identify Adjustments	20
22	T16	Implement Final Car Updates	21
23	**M3**	**Milestone: Car Testing Complete [M]**	**22**
24	**ST5**	**Final Preparations**	
25	T17	Final Inspection & Quality Check	23
26	**M4**	**Milestone: Final Car Check Complete [M]**	**25**
27	T18	Pack Cars & Equipment for Shipment (Air & Sea Freight)	26
28	T19	Driver Preparation & Briefings	26
29	**M5**	**Milestone: Final Preparations Completed [M]**	**27,28**
30	**ST6**	**Race Week**	
31	T20	Freight Transportation & Emergency Shipments	29
32	T21	Advance Crew Deployment & Initial Setup	29
33	T22	Personnel Arrival & Final Deliveries	29
34	T23	Garage Build-Out & Facility Completion (Albert Park)	32,31,33
35	T24	Pre-race media and PR activities (Driver Photoshoots)	34
36	**M6**	**Milestone: Pre Race Activities Done [M]**	**35**
37	**ST7**	**Race Weekend**	
38	T25	Car Scrutineering (FIA inspection)	36
39	T26	Free Practice Sessions (Friday, FP1 & FP2)	38
40	T27	Free Practice 3 & Qualifying (Saturday)	39
41	T28	Melbourne Grand Prix Race Start @3pm	40
42	**M7**	**Milestone: Melbourne Grand Prix Race Ends [M]**	**41**
43	**ST8**	**Post-Race Logistics**	

44	T29	Pack-Up & Transition to Shanghai	42
45	**ST9**	**Close Project**	
46	T30	Change Management and User Documentation	42

Table 3: Predecessor List

7. Tracking Gantt & Free Slack Analysis

The Tracking Gantt chart was used to identify non-critical tasks and Free Slack, indicated by the blue bars extending beyond their finish date. These tasks have flexibility in their start or finish time without delaying the overall project. Based on the chart, the following tasks exhibit Free Slack:

- T4: Plan Travel & Freight Logistics – 7 days
- T6: Risk Assessment & Contingency Planning – 2 days
- T9: Manufacture Aerodynamic and Mechanical Components – 3 days
- T18: Pack Cars & Equipment for Shipment (Air & Sea Freight) – 4 days
- T21: Personnel Arrival & Final Deliveries – 0.13 days
- T29: Pack-Up & Transition to Shanghai – 4.13 days

Figures 10 and 11 below show the Tracking Gantt View, highlighting non-critical tasks & slack time.

Critical: No	
Resource & Schedule Planning	0 days
Plan Travel & Freight Logistics	7 days
Risk Assessment & Contingency Planning	2 days
Manufacture Aerodynamic and Mechanical Components	3 days
Pack Cars & Equipments for Shipment (Air & Sea Freight)	4 days
Personnel Arrival & Final Deliveries	0.13 days
Pack-Up & Transition to Shanghai	4.13 days

Figure 10: Noncritical tasks and Free Slack

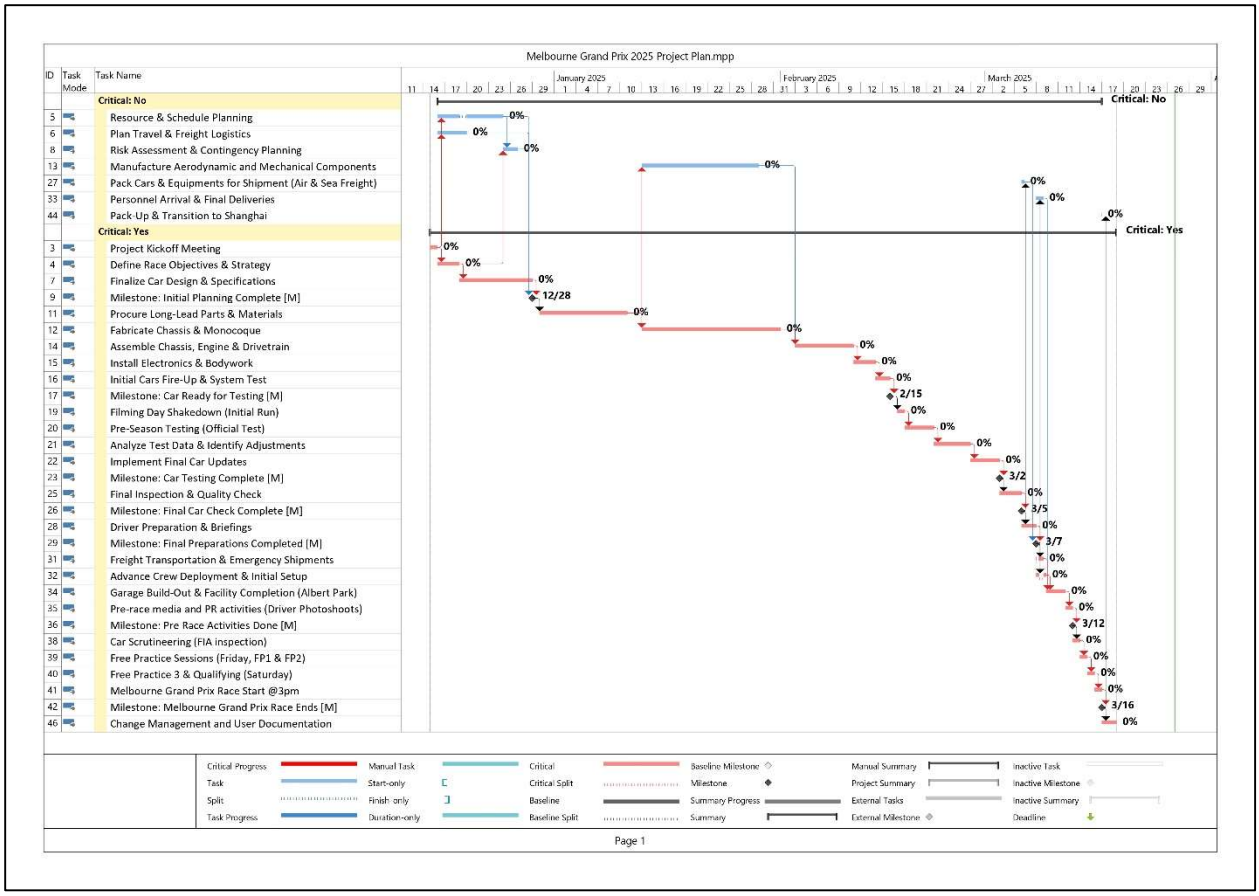


Figure 11: Tracking Gantt

8. Project Expenditure Breakdown

The Melbourne 2025 Grand Prix Preparation Project Plan serves as the consolidated summary task, capturing all resources required across the full race preparation lifecycle. Costs for each resource have been calculated by prorating their annual value to reflect their contribution to a single Grand Prix event. The Alpine F1 team's annual budget for the 2025 season is estimated at $200 million, distributed across 24 races, leading to a standard per-race allocation of approximately $8.3 million. However, this project's estimated expenditure stands at $10.1 million, which is slightly above the typical per-race benchmark.

As the opening race of the season, the Melbourne Grand Prix incurs several front-loaded operational costs associated with:

- Initial car preparation and full-system validation
- First-time race weekend logistics setup
- Usage of development tools, systems, and factory resources already deployed for season-wide readiness
- Initial marketing and media engagements

Subsequent races are expected to incur lower incremental costs, thereby balancing the overall seasonal budget.

Phase	**Budget**
Initial Planning	$554,720.00
Car Preparation	$3,302,000.00
Testing & Adjustments	$431,800.00
Final Preparations	$179,600.00
Race Week	$1,409,794.76
Post-Race Logistics	$166,000.00
Project Closure	$13,920.00
Fixed Resource Costs/per race	$4,050,000.00
Total	**$10,107,834.76 ~ 10.1M**

Table 3: High-level cost breakdown by project phase

The project's total expenditure is categorized into three primary resource types:

1. **Cost Resources** (Table 4) encompass operational expenditures that are not human, or material based. These include subscription-based tools and systems (e.g., simulation software, telemetry systems, AI analytics, VR, GPS etc.), as well as recurring costs related to

facilities, logistics, offices, and administrative overheads. These resources are assigned to summary-level tasks and not linked directly to individual activities.

2. **Material Costs** (Table 5) include tangible items used during the project. This includes car components used in fabrication and assembly, pit lane equipment, and race weekend consumables.
3. **Work Costs** (Table 6) refer to human capital, including drivers, engineers, pit crew, logistics coordinators, and leadership staff. Each role's cost is based on realistic hourly rates and unit sizes (with 1 unit = 25 staff for high-staffed departments).

All resource costs in this project plan have been estimated using publicly available data. A comprehensive list of sources is provided in the Bibliography section. These references support the justification of all estimates used in the cost breakdown tables.

8.1 Cost Resources

Resource Name	Type	Group	Cost (USD)	Notes
Telemetry Systems	Cost	IT Technical Resources	$150,000.00	Systems used to collect real-time data from the car (e.g. engine performance, tire pressure) and transmit it to engineers for live analysis.
Simulation Software	Cost	IT Technical Resources	$200,000.00	Software used by engineers and drivers to model race scenarios, car setup responses, and performance simulations.
Data Analytics	Cost	IT Technical Resources	$300,000.00	Advanced tools used to process and interpret data from sensors and races to support strategy and design.
Virtual Reality (VR)	Cost	IT Technical Resources	$50,000.00	VR systems used to simulate cockpit environments and track conditions for driver training.
GPS Tracking	Cost	IT Technical Resources	$50,000.00	Used for precise vehicle positioning during races and simulations to assist with strategy and telemetry alignment.

Wearable Technology	Cost	IT Technical Resources	$50,000.00	Biometric tools used to monitor driver vitals like heart rate and hydration in real time.
Cloud Computing	Cost	IT Technical Resources	$50,000.00	Enables centralized access to race and development data by global teams and partners.
Artificial Intelligence (AI)	Cost	IT Technical Resources	$200,000.00	Used to predict race strategies, component wear, and simulate real-time decision-making scenarios.
Communication Systems	Cost	IT Technical Resources	$100,000.00	Radios and data links used for seamless interaction between pit wall, engineers, and drivers.
Simulation Tools	Cost	Car Development and Engineering	$150,000.00	Hardware-based systems (like driver-in-loop simulators) used for performance modeling.
Telemetry Systems Hardware	Cost	Car Development and Engineering	$200,000.00	Physical sensors, wiring, and receivers required to gather and send car data during testing and races.
Wind Tunnels	Cost	Car Development and Engineering	$400,000.00	Aerodynamic testing facilities to assess drag, downforce, and airflow across the car's bodywork.
Renault Power Unit Supplier	Cost	Car Development and Engineering	$1,800,000.00	Cost of engine supply, maintenance, and trackside support from Renault for the season.
Logistical Resources	Cost	Operations and Logistics Costs	$100,000.00	General shipping, customs, and storage services needed to move race equipment globally.
Transport Vehicles	Cost	Operations and Logistics Costs	$150,000.00	Trucks and containers used to transport F1 cars and equipment across Europe and globally.
Travel Expenses	Cost	Operations and Logistics Costs	$150,000.00	Flights, accommodation, and per-dem for team personnel attending race events.
Base Facilities (garage)	Cost	Operations and Logistics Costs	$37,500.00	On-track garages used for race preparation, including equipment setup and car assembly.
Factories (operations cost)	Cost	Operations and Logistics Costs	$100,000.00	Overheads for daily running of the factory, including power, materials, and support infrastructure.
Workshops	Cost	Operations and Logistics Costs	$100,000.00	Specific in-factory facilities for machining, electronics, and small-scale assembly operations.

Offices	Cost	Operations and Logistics Costs	$50,000.00	Administrative and office spaces, including design rooms, strategy hubs, and finance teams.
Partnerships and Suppliers	Cost	Marketing & Sponsorship	$500,000.00	Commercial agreements and service contracts with suppliers for technical and material support.
Technical Partners	Cost	Marketing & Sponsorship	$650,000.00	External companies providing specialized tools, software, or R&D collaboration (e.g. AWS, Pirelli).
Suppliers (sponsorship)	Cost	Marketing & Sponsorship	$250,000.00	Brands that offer financial support in exchange for marketing and branding visibility.
Trackside Operational Costs	Cost	Race Operations	$500,000.00	Setup, personnel deployment, hospitality, and consumables required during race weekends.
Administrative Overheads	Cost	Compliance & Administrative	$250,000.00	Salaries, HR, insurance, and legal costs involved in running the team off-track.
Compliance Overheads (Legal)	Cost	Compliance & Administrative	$250,000.00	Costs associated with FIA regulation compliance, technical submissions, and legal representation.

Table 4: Cost Resource Expenditure Breakdown

8.2 Material Resources

Resource Name	**Type**	**Group**	**Cost (USD)**	**Notes**
Car Components	Material	Car Development and Engineering	$200,000.00	Covers all structural and mechanical components required for the race car. Parts are a mix of 3D-printed custom items (e.g. aero fins, ducts) and externally sourced spares such as suspension arms and control units.
Pit Equipment & Consumables	Material	Race Operations	$100,000.00	Includes tire guns, jacks, fueling rigs, brake pads, and gloves. These are essential for rapid pit stop operations and are routinely maintained or replaced with each race.

Race Weekend Consumables	Material	Race Operations	$300,000.00	Encompasses catering, hydration systems, garage cleaning supplies, fuel, fluids, and cooling units used during the event. These are required to support crew, drivers, and operational systems throughout the race weekend.

Table 5: Material Resource Expenditure Breakdown

8.3 Work Resources

Resource Name	Type	Group	Cost	Standard Rate per individual (per hour)	Notes
Race Drivers	Work	Race Drivers	$87,533.33	$650.00/hr	Top-tier F1 drivers earn from $5M to over $50M annually (e.g. Verstappen or Hamilton), equating to ~$650/hr or more depending on race & sponsor duties.
Race Engineers	Work	Race Engineers	$19,466.67	$100.00/hr	Race engineers earn $80,000–$175,000 per year.
Aerodynamicists	Work	Engineering and Technical Staff	$540,000.00	$100.00/hr	Aerodynamicists at F1 teams typically earn $40,000–$100,000+ per year.
Mechanical Engineers	Work	Engineering and Technical Staff	$520,000.00	$100.00/hr	Similar to aerodynamicists, salaries range from $70,000–$150,000/year.
Electrical Engineers	Work	Engineering and Technical Staff	$256,000.00	$80.00/hr	Mid-tier engineering role; average salary ~$65,000–$120,000/year in motorsports.
Software Engineers	Work	Engineering and Technical Staff	$126,000.00	$70.00/hr	Motorsport software engineers earn $60,000–$100,000/year.
Data Analysts	Work	Engineering and Technical Staff	$48,000.00	$60.00/hr	F1 analysts typically earn $50,000–$90,000/year depending on experience and responsibilities.

Marketing Team	Work	Marketing and Media	$16,000.00	$50.00/hr	F1 marketing staff earn ~$45,000–$75,000/year.
Media and PR	Work	Marketing and Media	$16,000.00	$50.00/hr	PR officers in motorsport make around $50,000–$80,000/year.
Manufacturing Technicians	Work	Factory and Production Staff	$270,000.00	$50.00/hr	F1 technicians earn ~$40,000–$75,000/year depending on shift and specialty.
Quality Control	Work	Factory and Production Staff	$180,000.00	$50.00/hr	QA engineers in motorsport: ~$50,000–$80,000/year.
Team Principal	Work	Management and Leadership	$6,400.00	$200.00/hr	F1 principals earn $1M–$8M+/year, averaging ~$200/hr when pro-rated.
Sporting Director	Work	Management and Leadership	$4,800.00	$150.00/hr	Senior race ops role: $300,000–$500,000/year depending on team and seniority.
Technical Director	Work	Management and Leadership	$6,600.00	$150.00/hr	Technical Directors earn ~$300,000–$600,000/year.
Chief Engineers	Work	Management and Leadership	$18,000.00	$150.00/hr	Similar to senior directors, experienced engineers in F1 can make over $250,000/year.
Project Manager	Work	Management and Leadership	$21,120.00	$120.00/hr	F1 PMs earn ~$200,000–$250,000/year in high-level ops.
Logistics Coordinators	Work	Logistics and Support Staff	$30,000.00	$30.00/hr	Motorsport logistics staff earn ~$45,000–$65,000/year.
Event Support Staff	Work	Logistics and Support Staff	$42,000.00	$30.00/hr	Includes crew setup and accreditation support; industry avg ~$30/hr.
Ground Staff	Work	Logistics and Support Staff	$39,571.43	$30.00/hr	Track operations and security support typically earn $30–$40/hr.

Administrative Staff	Work	Logistics and Support Staff	$12,000.00	$30.00/hr	Admin staff in motorsport teams earn ~$40,000–$60,000/year.
Strategists	Work	Strategy and Performance	$3,093.33	$80.00/hr	F1 strategists earn $100,000–$150,000/year, depending on experience.
Performance Engineers	Work	Strategy and Performance	$98,000.00	$70.00/hr	Performance engineers: ~$80,000–$130,000/year.
Mechanics	Work	Mechanics and Pit Crew	$162,083.33	$50.00/hr	F1 mechanics earn $50,000–$100,000/year; top crew receive bonuses.
Pit Crew	Work	Mechanics and Pit Crew	$77,666.67	$40.00/hr	Pit crew salaries range from $30,000–$80,000/year depending on specialization.

****For resource allocation in MS Project, the standard rate is multiplied by 25 for resources, which are factored to 1 unit = 25 staff, and that amount is used as the standard rate/hr.**

Table 6: Work Resource Expenditure Breakdown

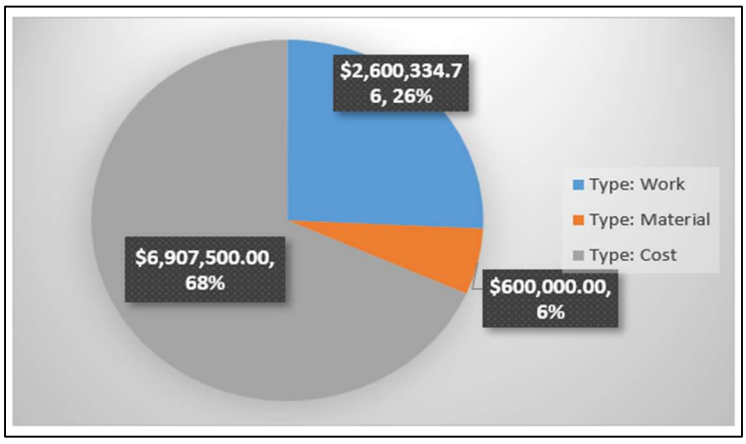


Figure 12: Resource Cost Overview

9. Project Risks

Risk management is a critical part of any complex, high-performance project, especially in Formula 1, where variables such as logistics, personnel, regulations, and weather can shift rapidly and significantly impact outcomes. While the project plan is structured to minimize exposure to risk through clear dependencies, realistic durations, and balanced resource allocation, there are still potential challenges that must be considered throughout the lifecycle of the Melbourne Grand Prix preparation.

The following table outlines six key risks grouped by category. These risks have been identified based on real-world scenarios commonly encountered in Formula 1 projects. Each represents a potential threat to the success of the event if not proactively monitored and managed.

Risk ID	Risk Group	Risk Description
R1	Technical Risk	Delays in car preparation due to part shortages, design issues, or assembly problems could push back testing and readiness for the race (Rogers, 2025).
R2	Operational/Logistics Risk	Freight or travel disruptions, including customs delays or flight cancellations, could affect equipment or personnel arrival at the Melbourne venue (Smith, 2025).
R3	Environmental Risk	Adverse weather conditions during race week, particularly rain, could impact car setup, strategy, or even race timing (Keith, 2024).
R4	Human Resource Risk	Unavailability of key team members (e.g., engineers, drivers, logistics staff) due to illness, visa issues, or scheduling conflicts.
R5	Compliance & Regulatory Risk	Failure to meet FIA technical or documentation requirements, such as car scrutineering or crew registration, may lead to penalties or disqualification (McDonagh, 2024).
R6	Strategic/Reputational Risk	Underperformance on race day due to poor setup decisions, miscommunication, or operational errors, affecting team standings and sponsor visibility.

Table 7: Project Risks

9.1. Risk Response Strategy

R1 - Delay in Car Preparation: This is one of the most critical risks due to its position on the project's critical path. To manage this, progress must be closely monitored through frequent check-ins and milestone reviews. Any delays in part delivery or fabrication should trigger contingency measures, such as reordering from alternative suppliers or shifting to pre-approved backup components. Where possible, tasks such as travel planning or driver briefing may be advanced in parallel to mitigate schedule compression.

R2 - Freight or Travel Disruptions: To reduce the impact of shipment delays, redundant logistics strategies are implemented, including early shipments of critical components and the use of reliable freight partners. Travel plans for the team are confirmed well in advance, with buffer days built into the schedule. In the event of an unexpected disruption, the project manager would coordinate with logistics teams to reroute shipments or utilize expedited alternatives to keep operations on schedule.

R3 - Adverse Weather Conditions During Race Week: Weather is a known variable in F1 motorsport and is accounted for in both technical setup and strategic planning. The team prepares wet-weather car configurations and ensures tire inventory and pit crew readiness for changing conditions. In case of rain or high winds, the strategy team would dynamically adjust pit windows, driver instructions, and fuel usage during the race. These are live adjustments rather than changes to the formal project schedule.

R4 - Unavailability of Key Personnel: Cross-functional training and backup assignments are essential in mitigating this risk. For critical roles such as race drivers, race engineers or technical directors, alternates are identified early, and access to relevant documentation is shared. Preventative actions include early visa processing, travel confirmation, and health checks before resource assignment.

R5 - FIA Compliance Failure: Compliance is embedded into the car preparation and testing phases. Multiple internal scrutineering reviews are scheduled before the official inspection. The technical team is responsible for documenting every component change and ensuring adherence to FIA standards. If non-compliance is detected, rapid correction workflows are in place to adjust and request re-inspection before any penalties are incurred.

R6 - Race Day Underperformance: Although not a direct delay to the project plan, race day underperformance can damage team credibility. Mitigation includes regressive pre-race simulation, detailed strategic planning meetings, and continuous telemetry monitoring during the race. If performance drops, strategy teams shift tactics in real time to optimize outcomes.

In a high-performance, high-stakes environment like Formula 1, risks are not merely theoretical; they are expected. The project plan proactively anticipates key threats, such as delays in car preparation, freight disruptions, or weather-related challenges. While Task T6 - Risk Assessment & Contingency Planning is formally scheduled during the initial planning phase, risk management is treated as an ongoing process. Risks are periodically reviewed and reassessed throughout the project, particularly at milestone transitions and during the execution of critical tasks that could significantly impact the project timeline or performance. When issues arise, their impact is promptly evaluated, contingency actions are activated, and task sequences will be adjusted as needed to maintain momentum. For instance, in the event of a freight delay, the logistics team would coordinate alternate routing or reprioritize shipments to ensure downstream tasks remain unaffected. This dynamic, solution-focused approach to risk management is essential to maintaining control and delivery confidence in an elite motorsport operation such as Alpine F1.

10. Relevance of PRINCE2 Project Management

PRINCE2 is a process-based project management methodology that emphasizes structure, stage control, accountability, and continuous improvement principles that align closely with the operational needs of a Formula 1 team like Alpine F1. The environment in which F1 teams operate

is characterized by tight deadlines, complex dependencies, high regulatory compliance (e.g., FIA standards). PRINCE2 provides a structured yet flexible framework to manage this complexity effectively (Projectmanagement.com, 2024). Key reasons for its relevance include:

- **Stage-Based Control:** Formula 1 projects, ranging from car development to race logistics, are naturally suited to PRINCE2's phased approach. This enables structured reviews of progress, risk, and cost before transitioning between stages, which is ideal for coordinating design, build, test and race operations.
- **Defined Roles & Responsibilities:** With hundreds of specialists working under tight deadlines, PRINCE2's emphasis on role clarity ensures that responsibilities are clearly assigned, and communication remains streamlined across departments.
- **Integrated Risk Management:** F1 projects face constant uncertainty, from component delays to changing weather. PRINCE2 embeds continuous risk identification, response planning, and escalation paths throughout the lifecycle of the project.
- **Scalability and Flexibility:** PRINCE2 can be tailored to suit both long-term programs such as car design and short-term event-driven activities like freight logistics, media handling, or pre-race technical checks.
- **International Recognition:** As a globally accepted standard, PRINCE2 provides a common language and methodology, supporting collaboration across global suppliers, partners, and governing bodies, especially crucial in a multinational sport like Formula 1.

In the current context, PRINCE2 is more than just a qualification, it's a practical framework that aligns with how F1 teams like Alpine operate. It supports planning under pressure, managing change, and delivering results across highly dependent teams. Whether coordinating engineering design, testing, supplier logistics, or live race support, the structure and discipline of PRINCE2 helps ensure nothing falls through the cracks. For a project where seconds matter, having a project manager trained in PRINCE2 brings real value, not just in documentation, but in making fast, confident, and accountable decisions when it counts.

11. Conclusion

This project plan outlines a complete and realistic schedule, resource allocation, and cost structure for Alpine F1 Team's preparation for the 2025 Melbourne Grand Prix. The plan is built around a 77-day flexible timeline and includes all key phases from initial planning and car development through race execution and post-race logistics. A detailed work breakdown structure, critical path analysis, and resource-driven budgeting model were applied using MS Project, ensuring efficient use of staff and cost resources without overallocation. Task durations were based on real-world benchmarks from Formula 1 operations, and costs were prorated from annual team budgets to reflect per-race allocations, keeping total expenditure within the expected $10M range. Through risk identification, milestone tracking, and resource balancing, the plan provides full transparency into deliverables, costs, and contingency planning. This report reflects the core principles of project management in a high-pressure, time-critical sports engineering environment, demonstrating the ability to lead and manage a professional motorsport operation.

12. Bibliography

Aditya Talpade (2023). How much does an F1 pit crew member earn? [online] Sportskeeda.com. Available at: https://www.sportskeeda.com/f1/news-how-much-f1-pit-crew-member-earn.

Ambler, W. (2024). How Data Analysis Transforms F1 Race Performance. [online] Catapult. Available at: https://www.catapult.com/blog/f1-data-analysis-transforming-performance.

Braybrook, R. (2024). Everything you need to know about the pitwall in F1 - who sits there and what does it do? [online] Autosport.com. Available at: https://www.autosport.com/f1/news/everything-you-need-to-know-about-the-pitwall-in-f1-who-sits-there-and-what-does-it-do/10588720/.

Cojocaru, S. (2024). Driving Business: The Economics of a Formula 1 Team. [online] DIVEBOMB. Available at: https://www.dive-bomb.com/article/driving-business-the-economics-of-a-formula-1-team.

DIRECTV Insider (2024). How Much Do Formula 1 Drivers Get Paid? [online] DIRECTV. Available at: https://www.directv.com/insider/formula-1-payrolls/.

Elson, J. (2021). How much does an F1 car cost? [online] Motor Sport Magazine. Available at: https://www.motorsportmagazine.com/articles/single-seaters/f1/how-much-does-an-f1-car-cost/.

F1 Authentics. (2025). BWT Alpine A524 F1 Team Simulator. [online] Available at: https://www.f1authentics.com/products/bwt-alpine-f1-team-simulator?srsltid=AfmBOorm3kpM96QgS-aUpE_dBpcvOag8eBDyZ8OSRV67jpD8I8gC0QK-.

Fluidjobs.com. (2024). Formula 1 Salary Statistics (F1 2025). [online] Available at: https://fluidjobs.com/blog/formula-1-salary-statistics-2025.

Formula 1 (2024). Beginner’s guide to the F1 weekend. [online] www.formula1.com. Available at: https://www.formula1.com/en/latest/article/the-beginners-guide-to-the-formula-1-weekend.5RFZzGXNhEi9AEuMXwo987.

Formula 1 (2025). Everything You Need to Know about F1. [online] Formula 1. Available at: https://www.formula1.com/en/latest/article/drivers-teams-cars-circuits-and-more-everything-you-need-to-know-about.7iQfL3Rivf1comzdqV5jwc.

FORMULA 1 LOUIS VUITTON AUSTRALIAN GRAND PRIX 2025. (2025). F1® Explained: How does a race weekend work? [online] Available at: https://www.grandprix.com.au/fan-zone/f1-explained/race-weekend.

Formula 1® - The Official F1® Website. (2020). The insider's guide to… Preparing a car through practice | Formula 1®. [online] Available at: https://www.formula1.com/en/latest/article/the-insiders-guide-to-preparing-a-car-through-practice.5xWpgp8nsTh6PCowm7bDEE.

Formula 1® - The Official F1® Website. (2025). F1 - The Official Home of Formula 1® Racing. [online] Available at: https://www.formula1.com/en/racing/2025.

Formula 1® - The Official F1® Website. (n.d.). F1 - The Official Home of Formula 1® Racing. [online] Available at: https://www.formula1.com/en/latest/tags/beginner-s-guide.7szZSRQkywApBCsTz1sDwg.

Haldenby, N. (2019). The Logistics Of Formula 1. [online] F1Destinations.com. Available at: https://f1destinations.com/the-logistics-of-formula-1/.

Keith, P. (2024). *How does the weather impact F1 teams and drivers?* [online] Red Bull. Available at: https://www.redbull.com/au-en/how-weather-impacts-f1-racing.

Longman, W. (2022). F1 driver salaries: how much Formula 1 drivers earn in 2022. [online] Motorsport Tickets Blog. Available at: https://motorsporttickets.com/blog/f1-driver-salaries-how-much-formula-1-drivers-earn/.

McDonagh, C. (2024). *Both Haas F1 drivers disqualified from Monaco qualifying for technical compliance failure*. [online] Crash.net. Available at: https://www.crash.net/f1/news/1049304/1/both-haas-f1-drivers-disqualified-monaco-qualifying-technical-compliance-failure.

Mercedes-AMG PETRONAS F1 Team. (n.d.). What Is the Format of a Race Weekend? [online] Available at: https://www.mercedesamgf1.com/news/what-is-the-format-of-a-race-weekend.

Microsoft Unlocked. (2024). Beyond the track. [online] Available at: https://unlocked.microsoft.com/alpine-f1-team/.

Projectmanagement.com. (2024). *ProjectManagement.com - PRINCE2 - Overview*. [online] Available at: https://www.projectmanagement.com/wikis/400990/prince2---overview#_=_.

Rogers, S. (2025). Hamilton dealt Ferrari blow after significant part of 2025 preparation delayed. [online] F1 Oversteer. Available at: https://www.f1oversteer.com/news/lewis-hamilton-dealt-early-ferrari-blow-after-significant-part-of-2025-f1-preparation-delayed/.

Smith, J.O. (2025). *Multiple F1 teams suffer freight delay ahead of Chinese GP*. [online] Motorsport Week. Available at: https://www.motorsportweek.com/2025/03/19/multiple-f1-teams-suffer-freight-delay-ahead-of-chinese-gp/.

Sylt, C. (2020). Red Bull Reveals How Much It Really Costs To Run An F1 Team. [online] Forbes. Available at: https://www.forbes.com/sites/csylt/2020/01/14/red-bull-reveals-how-much-it-really-costs-to-run-an-f1-team/.

Tafà, R. (2023). The cost of Formula 1 Cars: Components, and Performance. [online] RTR Sports. Available at: https://rtrsports.com/en/blog/the-intricate-world-of-formula-1-cars-costs-components-and-performance/.

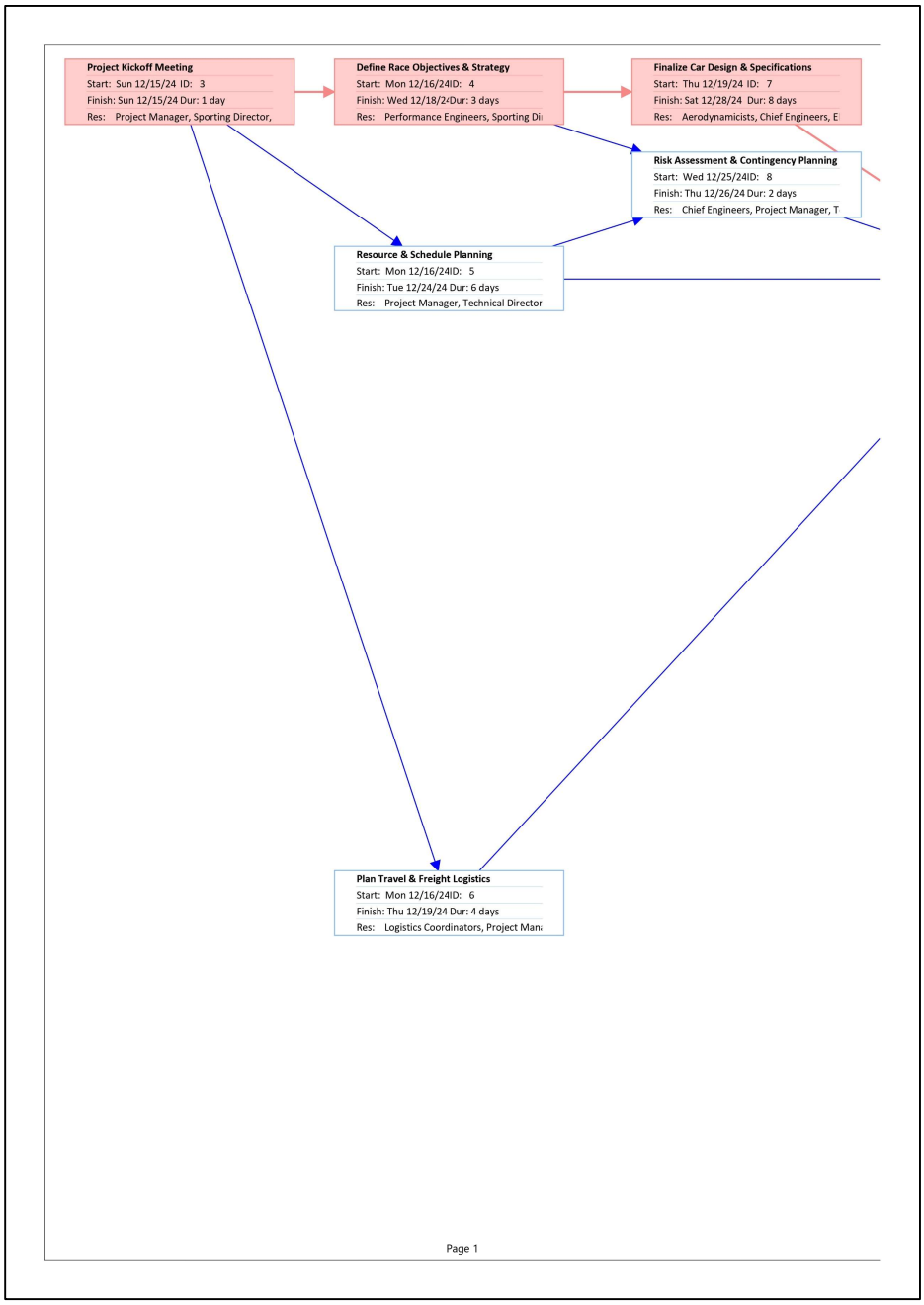
The Autosport Forums. (2001). How much is a good wind tunnel? - Racing Comments Archive. [online] Available at: https://forums.autosport.com/topic/31118-how-much-is-a-good-wind-tunnel/.

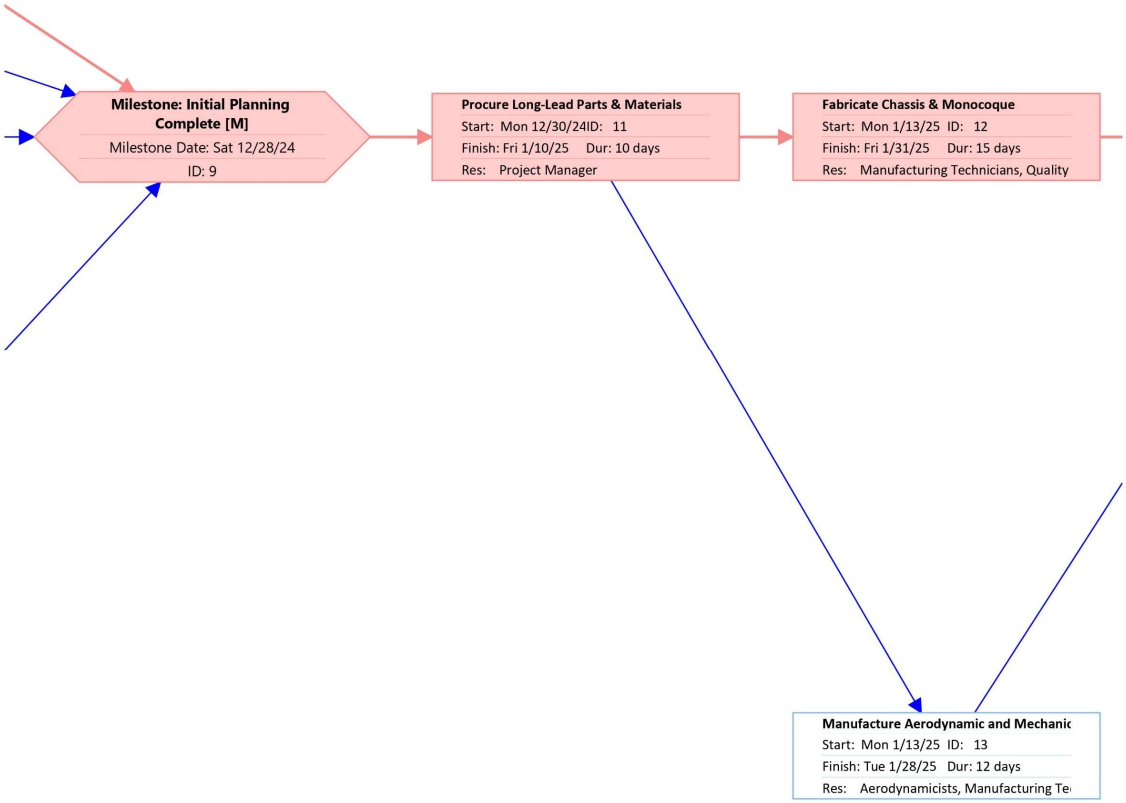
www.formula1.com. (n.d.). Beginner's guide to F1 pre-season testing. [online] Available at: https://www.formula1.com/en/latest/article/the-beginners-guide-to-f1-pre-season-testing.3CuYMLp6etxlynKLz0j7Ev.

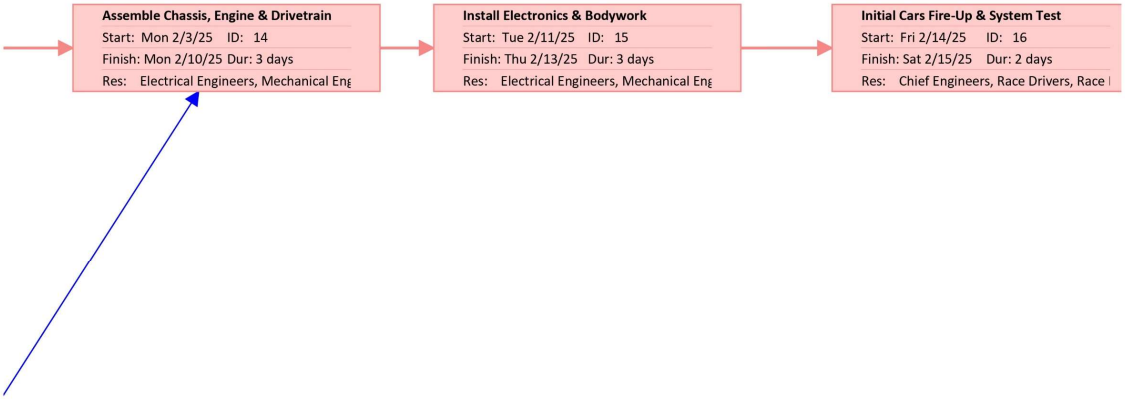
Zinkula, J. (2023). How a Formula 1 team packs up and hauls its cars, equipment, and staff around the world. [online] Business Insider. Available at: https://www.businessinsider.com/how-formula-one-team-transports-drivers-cars-staff-world-season-2023-11.

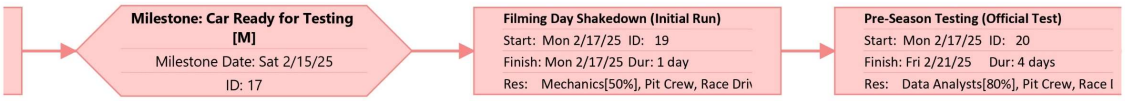
13. Appendices

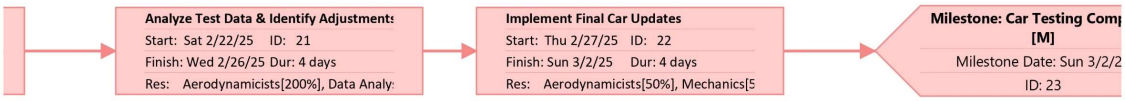
Appendix 1: Extended Network Diagram

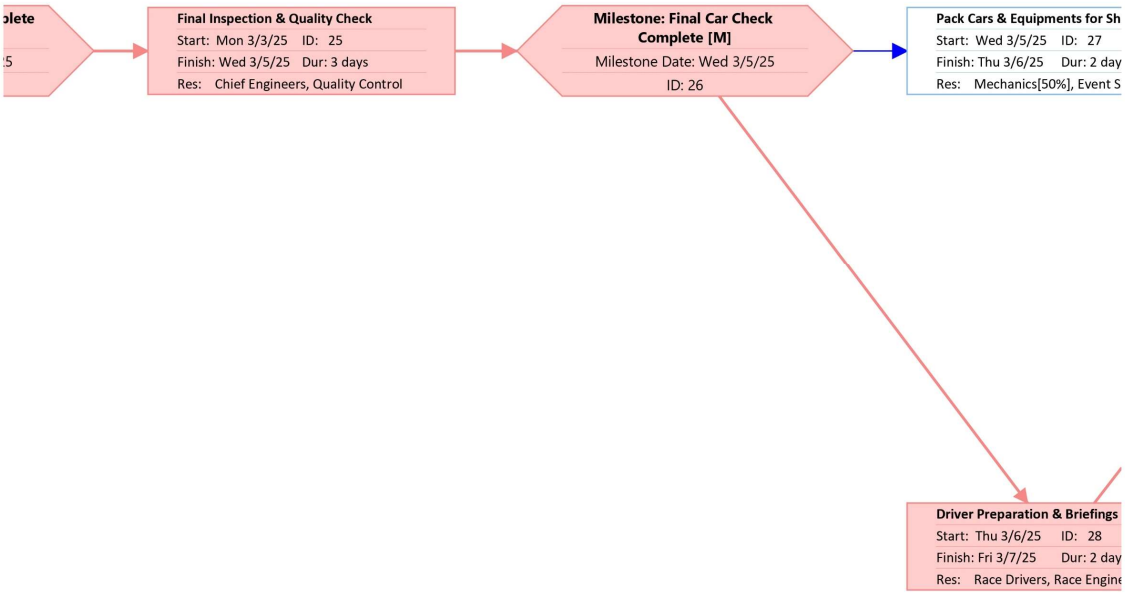


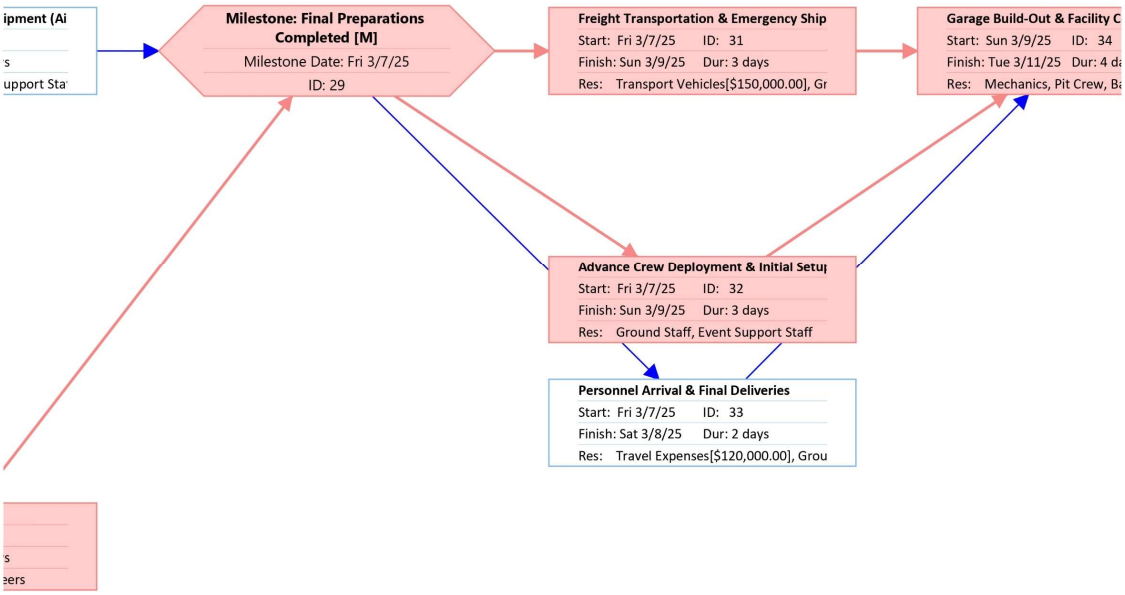

Milestone: Initial Planning Complete [M]
Milestone Date: Sat 12/28/24
ID: 9
Procure Long-Lead Parts & Materials
Start: Mon 12/30/24ID: 11
Finish: Fri 1/10/25 Dur: 10 days
Res: Project Manager
Fabricate Chassis & Monocoque
Start: Mon 1/13/25 ID: 12
Finish: Fri 1/31/25 Dur: 15 days
Res: Manufacturing Technicians, Quality
Manufacture Aerodynamic and Mechanic
Start: Mon 1/13/25 ID: 13
Finish: Tue 1/28/25 Dur: 12 days
Res: Aerodynamicists, Manufacturing Te

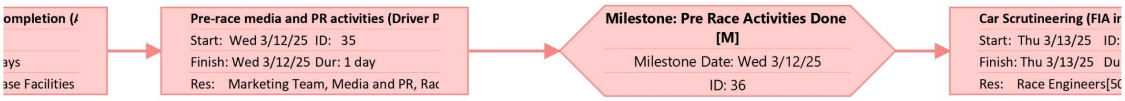

Assemble Chassis, Engine & Drivetrain
Start: Mon 2/3/25 ID: 14
Finish: Mon 2/10/25 Dur: 3 days
Res: Electrical Engineers, Mechanical Eng
Install Electronics & Bodywork
Start: Tue 2/11/25 ID: 15
Finish: Thu 2/13/25 Dur: 3 days
Res: Electrical Engineers, Mechanical Eng
Initial Cars Fire-Up & System Test
Start: Fri 2/14/25 ID: 16
Finish: Sat 2/15/25 Dur: 2 days
Res: Chief Engineers, Race Drivers, Race


Milestone: Car Ready for Testing [M]
Milestone Date: Sat 2/15/25
ID: 17
Filming Day Shakedown (Initial Run)
Start: Mon 2/17/25 ID: 19
Finish: Mon 2/17/25 Dur: 1 day
Res: Mechanics[50%], Pit Crew, Race Dri
Pre-Season Testing (Official Test)
Start: Mon 2/17/25 ID: 20
Finish: Fri 2/21/25 Dur: 4 days
Res: Data Analysts[80%], Pit Crew, Race I

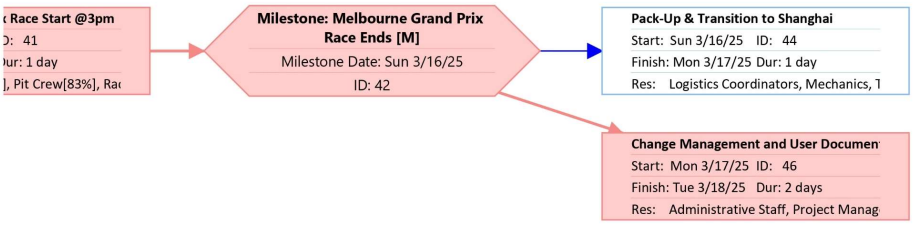

Analyze Test Data & Identify Adjustments
Start: Sat 2/22/25 ID: 21
Finish: Wed 2/26/25 Dur: 4 days
Res: Aerodynamicists[200%], Data Analy
Implement Final Car Updates
Start: Thu 2/27/25 ID: 22
Finish: Sun 3/2/25 Dur: 4 days
Res: Aerodynamicists[50%], Mechanics[5
Milestone: Car Testing Comp
[M]
Milestone Date: Sun 3/2/2
ID: 23


plete
:5
Final Inspection & Quality Check
Start: Mon 3/3/25 ID: 25
Finish: Wed 3/5/25 Dur: 3 days
Res: Chief Engineers, Quality Control
Milestone: Final Car Check Complete [M]
Milestone Date: Wed 3/5/25
ID: 26
Pack Cars & Equipments for Sh
Start: Wed 3/5/25 ID: 27
Finish: Thu 3/6/25 Dur: 2 day
Res: Mechanics[50%], Event S
Driver Preparation & Briefings
Start: Thu 3/6/25 ID: 28
Finish: Fri 3/7/25 Dur: 2 day
Res: Race Drivers, Race Engine


ipment (Ai
s
upport Sta
Milestone: Final Preparations Completed [M]
Milestone Date: Fri 3/7/25
ID: 29
Freight Transportation & Emergency Ship
Start: Fri 3/7/25 ID: 31
Finish: Sun 3/9/25 Dur: 3 days
Res: Transport Vehicles[$150,000.00], Gr
Garage Build-Out & Facility C
Start: Sun 3/9/25 ID: 34
Finish: Tue 3/11/25 Dur: 4 da
Res: Mechanics, Pit Crew, Ba
Advance Crew Deployment & Initial Setu
Start: Fri 3/7/25 ID: 32
Finish: Sun 3/9/25 Dur: 3 days
Res: Ground Staff, Event Support Staff
Personnel Arrival & Final Deliveries
Start: Fri 3/7/25 ID: 33
Finish: Sat 3/8/25 Dur: 2 days
Res: Travel Expenses[$120,000.00], Grou
s
eers


ompletion (A
ays
ase Facilities
Pre-race media and PR activities (Driver P
Start: Wed 3/12/25 ID: 35
Finish: Wed 3/12/25 Dur: 1 day
Res: Marketing Team, Media and PR, Rac
Milestone: Pre Race Activities Done [M]
Milestone Date: Wed 3/12/25
ID: 36
Car Scrutineering (FIA ir
Start: Thu 3/13/25 ID:
Finish: Thu 3/13/25 Du
Res: Race Engineers[5


spection)
38
r: 1 day
0%], Technical Dire
Free Practice Sessions (Friday, FP1 & FP2)
Start: Fri 3/14/25 ID: 39
Finish: Fri 3/14/25 Dur: 1 day
Res: Data Analysts[80%], Mechanics, Rac
Free Practice 3 & Qualifying (Saturday)
Start: Sat 3/15/25 ID: 40
Finish: Sat 3/15/25 Dur: 1 day
Res: Mechanics, Pit Crew, Race Drivers, F
Melbourne Grand Prix
Start: Sun 3/16/25
Finish: Sun 3/16/25
Res: Mechanics[83%


Race Start @3pm
D: 41
ur: 1 day
], Pit Crew[83%], Ra
Milestone: Melbourne Grand Prix
Race Ends [M]
Milestone Date: Sun 3/16/25
ID: 42
Pack-Up & Transition to Shanghai
Start: Sun 3/16/25 ID: 44
Finish: Mon 3/17/25 Dur: 1 day
Res: Logistics Coordinators, Mechanics, T
Change Management and User Documen
Start: Mon 3/17/25 ID: 46
Finish: Tue 3/18/25 Dur: 2 days
Res: Administrative Staff, Project Manag