

## **Searching for Bigfoot: The Ride Experience**

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### **Author Note**

This project is an academic exercise that does not represent the ideas or plans of any real company. All content is for educational purposes only.

### **Project Requirements**

Students were tasked with developing a detailed project plan for any idea of our choosing. The project plan was required to include a comprehensive project charter (outlining the project overview, opportunity statement, justification and impact, constraints and assumptions, project scope, and project organization), a work breakdown structure (detailing the development plan), and a risk management plan (covering risk identification, risk assessment, and risk response strategies).

## Executive Summary

The discussion details a new Bigfoot themed rollercoaster development coming to our theme park. Beginning the calm journey, riders will hear a brief history about Bigfoot while finding signs of the creature throughout the wilderness. Unexpectedly, guests will come face-to-face with Bigfoot, and the ride will send them on a highspeed chase through the forest. The attraction will have a maximum height of 75 feet and a maximum speed of 65 miles per hour. It will feature ten launches, five moderate drops, and a series of helixing. Beginning in 2025, the project development will take place over a span of about eight years, with a scheduled opening date of December 7<sup>th</sup>, 2032. The allocated project budget is \$30 million, and the expected project cost is approximately \$25 million. The project stakeholders are the theme park and its management, engineering, construction, safety, and operations teams. The work is delegated amongst 26 total teams who will collaborate to complete project initiation, site preparation, ride fabrication, ride installation, ride testing, scenery installation, and safety inspections. Throughout the ride development process, our organization will emphasize safety, accountability, corporate responsibility, collaboration, inclusivity, fun, and creativity. The ride will follow ADA Accessibility Guidelines, Title XXXVI Chapter 616 Section 242 safety standards, and ASTM International F24 Committee standards. The highest priority risks to monitor are wear and tear, cracks, malfunctioning mechanisms, and the potential for slips, trips, and falls in the queue and loading platform. Risk response and contingency plans have been developed. The goal is to create an attraction so unique that it will draw guests from all over the world to our park. Developing a Bigfoot themed attraction will offer the fanbase an immersive experience that they cannot find anywhere else. The Bigfoot themed ride will increase park revenues, enhance guest experience, improve the park's reputation, and boost the local economy.

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## Project Charter

### Project Overview

This project charter details the development for a new rollercoaster at our theme park. The storyline of the rollercoaster is a wild ride through the forest, in search of Bigfoot! The rollercoaster will feature multiple launches and thematic elements. The ride will avoid using upside-down and tall features, making it a more inclusive experience. The ride begins as an indoor dark ride, where guests are surrounded by beautiful forest scenery and the smell of fresh pine. The ride starts off calm, with a narrator explaining a short story of how Bigfoot was discovered and has not been seen since. Throughout the storytelling, there will be sound effects of rustling leaves and footsteps. There will also be visual signs of Bigfoot, such as hair samples, footprints, and even shadows.

### Figure 1

*Image generated by Canva's text-to-image tool using the prompt, "realistic bigfoot footprint trail in woods" (Canva, 2024).*



**Figure 2**

*Image generated by Canva's text-to-image tool using the prompt, "realistic bigfoot shadow in distance" (Canva, 2024).*



Once the story is over, guests will be faced with Bigfoot chasing them as they are blasted outside at a highspeed pace.

**Figure 3**

*Image generated by Canva's text-to-image tool using the prompt, "bigfoot chasing rollercoaster through forest" (Canva, 2024).*



The lighting inside will change to match the time of day, convincing riders they are outdoors throughout the entire experience. Our theme park will manage this project from start to finish, including design, procurement, assembly, installation, and testing.

### **Project Owner**

My name is Megan Kimsey and in this theoretical project I assume I am employed by a theme park as a project manager. The project owner is the theme park, and I am serving as the

lead project manager, responsible for overseeing the development of the attraction from start to finish.

### **Project Intent**

The intent of the project is to create an attraction so exciting that guests from all around the world are drawn to come to our park. The ride will be an inclusive attraction, bringing excitement and joy to all riders. I want to create an attraction that has a lasting impact on those who ride it, offering guests a memory they will look back on and cherish forever.

### **Project Inspiration**

In November 2024, I had the invaluable opportunity to attend the IAAPA Expo, where I encountered Axtell Expressions' massive animatronic Bigfoot, whom they named Bob. The realistic-looking creature inspired my creativity, encouraging me to think of innovative ride concepts that could utilize the animatronic. I thought to myself, "how much fun would a search for Bigfoot attraction be?!"

### **Organizational Values and Beliefs**

Safety is always the top priority and is the foundation for all our other company values. Furthermore, we strive to seek accountability and maintain corporate responsibility. It is also important to us to encourage collaboration, driving teamwork and inclusivity to ensure all voices are heard. We want to promote a culture of fun by always thinking outside the box and taking creative risks.

### **Opportunity Statement**

A significant opportunity exists in the development of a new innovative attraction that immerses guests in an intriguing, fun, and thrilling journey searching for Bigfoot.

Documentaries, podcasts, TV shows, and other media, have all been known to take advantage of the Bigfoot fan bases' infatuation with the mythical creature. Developing the first immersive theme park experience for guests to come face to face with their idol is a sound strategic move that aligns with our business objectives. By creating this attraction, we will close the market gap between Bigfoot fans and theme park goers.

### **Justification and Impact**

Developing the Bigfoot ride will have a lasting positive impact on the theme park's brand and finances, as well as on the community's economy. The Bigfoot ride will increase park attendance, enhance guest experience, and boost our reputation. Guest satisfaction will increase, resulting in positive reviews and referrals, thus attracting visitors and driving revenue growth through ticket sales. The innovative concept will solidify our reputation for taking creative risks. The benefits of the new ride development go beyond our park, by also providing the opportunity to increase local tourism and economic development.

### ***Testimonials***

The following testimonials were provided by graduate students as part of a class discussion board on Canvas, in response to the project's executive summary.

"The attention to detail in incorporating Bigfoot lore into the ride's narrative and the immersive elements, like the high-speed chase sound like an incredible experience for guests." -Sreenija Chintha

"I am obsessed with your Bigfoot-themed rollercoaster idea—it sounds so fun and immersive! The storytelling aspect, combined with the thrill of high-speed chases and helixes, will make it such a unique attraction... Honestly, I'd visit your theme park just for this ride. Such an exciting concept—well done!" – Taynara Dias

“I really like the idea of a Bigfoot-themed rollercoaster. It’s such a creative and immersive concept that will surely draw attention and provide a unique experience for guests. I particularly admire the way you’ve planned to blend storytelling and thrill. The balance between moderate drops, launches, and helixing is an great way to cater to thrill-seekers while maintaining a broad appeal.” -Benjamin Levsky

“I want this to be a real rollercoaster. I thought this was an awesome idea for a project and I bet it was one that was fun to think about, almost like playing Roller Coaster Tycoon!” – Jared Wolbert

### **Constraints and Assumptions**

Limited space within the park constrains the complexity of the new ride. The amount of space available will dictate the ride size, track layout, and vehicle maneuverability. Accessibility and queuing space also must be accounted for. The Americans with Disabilities Act (ADA), “requires that newly constructed and altered state and local government facilities, places of public accommodation, and commercial facilities be readily accessible to, and usable by, individuals with disabilities. The ADA Accessibility Guidelines (ADAAG) is the standard applied to buildings and facilities. Recreational facilities, including amusement park rides, are among the facilities required to comply with the ADA” (United States Access Board, 2003).

We are assuming a budget of \$30 million, which is another constraint for the project. Thematic elements, track design, advanced technology, and quality will all add to the price of the attraction.

With residential areas nearby, we have a responsibility to respect and maintain symbiotic relationships with those living around the park. We must adhere to the noise ordinance and permitted construction hours. Assuming we are constructing the ride in the state of Florida,

construction is allowed from 7:00am to 10:00pm (Noise Control Ordinance of Orange County, Florida, 2024). As long as the project goes according to plan, we will assume an eight-hour workday from 7:00am to 4:00pm, with a one-hour lunch break from 11:00am to 12:00pm.

Furthermore, we must be in accordance with the laws set in place pertaining to amusement park rides. Title XXXVI Chapter 616 Section 242 outlines the safety standards for amusement rides in the state of Florida (The Florida Senate, 2024). The American Society for Testing and Materials, known as ASTM International, also has various standards for designing, building, and testing new amusement park developments. Specifically, the ASTM International F24 Committee collaborates to develop, “standard methods of test, performance specifications, definitions, maintenance, operations, and practices and guides for amusement park rides and devices” (Koperna, 2024). Although not legally required, as a credible organization, we should continue striving to follow the ASTM International F24 Committee’s modern standards set in place for new ride development. According to IAAPA, the ASTM International F24 Committee has developed standards, “incorporated by 38 states, and in countries around the world” (2021).

We will set our own schedule, and do so within a reasonable manner, accounting for possible delays in the process. Once the opening date is announced, we must strive to complete the attraction on time to avoid disappointing guests. Therefore, schedule may become another constraint.

### **Project Scope**

Build a safe Bigfoot-themed rollercoaster with a maximum height of 75 feet, featuring ten launches, five moderate drops, a top speed of 65 miles per hour, and a series of helixing, to be operational within the park’s designated area by December 7<sup>th</sup>, 2032. Important project objectives are to ensure the ride is engaging, aligns with the park’s values and aesthetic, meets all

applicable safety regulations and standards, and is delivered within the assigned scope, budget, and schedule.

The scope of the project is to design and develop a Bigfoot themed rollercoaster and deliver detailed engineering plans and specifications for the track, vehicles, and support structures. The company will need to source the necessary materials and components, construct and install the ride, integrate the electrical components and control system, conduct safety testing in accordance with modern standards, and align the thematic elements to the Bigfoot storyline. Additional tasks that require significant development time, such as extensive track design beyond standard configurations, high-speed and/or high gravity elements, complex interactive features, and major infrastructure modifications, are all out of scope and should be avoided. The project deliverables consist of a completed engineering design package (including engineering drawings and documentation), a fully constructed and operational rollercoaster, safety test reports and compliance documentation, operator training materials, maintenance training materials, and thematic elements throughout the ride and queue. The assigned budget is \$30 million. The project will begin on the first workday of 2025. In an ideal scenario with no delays, the project is expected to finish June 7<sup>th</sup>, 2032. However, there is zero slack available in any task of the project, thus it is a more realistic to allow a 6-month time buffer and project the opening date to be December 7<sup>th</sup>, 2032.

The project stakeholders are the company and its management, engineering, construction, safety, and operations teams. As a credible organization who puts safety first, this ride must follow ADA Accessibility Guidelines, Title XXXVI Chapter 616 Section 242 safety standards, and ASTM International F24 Committee standards.

Microsoft Teams will be utilized as a communication channel between stakeholders and all involved project teams. It is expected that during business hours, employees will respond within 24 hours of receiving a direct message or email. There will be a shared Microsoft Teams calendar with all important meetings and events. Microsoft Project will be utilized to track project progress. Communication should be clear, concise, and effective.

### **Project Organization**

Management speaks as the project sponsor and oversees all important decision making for the project. Management supervises human resources, finance, and project management. Human resources is responsible for sourcing all labor that will be contracted for ride development. Finance ensures the project remains within budget and works to explore options if the project budget is compromised. The project management team ensures the project meets the scope, budget, and timeline. The project managers maintain communication with all teams to ensure everyone is in the loop. Management has numerous projects occurring throughout the park, meaning management will have less direct involvement in the project than the project management team does. Therefore, project management needs to deliver quarterly progress reports to management. Entertainment, engineering, construction, and safety all report directly to the project management team.

Entertainment is responsible for developing the overall ride storyline. The producer oversees the creative vision for the ride. Working under entertainment to understand the story, the producer creates a unique and immersive experience for all guests. The interior design and architecture, graphic design, and horticulture teams all report to production. The interior design and architecture team will build a working model of the ride in the beginning of the project, then install scenery throughout the ride and queue towards the end of the project. Graphic design

oversees all signage throughout the ride and queue. Horticulture makes the surrounding landscape beautiful and increases the aesthetic appeal of the ride.

Civil engineering works to ensure the structural integrity of the ride, conducting design calculations for all support structures. The mechanical engineers have the technical expertise required to design all mechanical systems of the ride, including the track layout, ride vehicles, and propulsion mechanisms. The controls engineers are responsible for developing the controls system of the ride, in addition to computerized visuals, and interactive elements. Maintenance and operations report to all engineering teams. Maintenance is a key team to loop into ride development, as they will be the ones to service the attraction upon opening. Operations is another key team to account for during ride development because they will be facing the ride every day and may have valuable insights for operational improvements.

The construction teams work to get the ride assembled and installed. The safety team ensures the ride adheres to all safety regulations and standards.

### **Work Breakdown Structure**

When prompted with, “work breakdown structure for new ride,” Google Gemini assisted with idea generation for the work breakdown structure below (Google AI, 2024).

#### **Rollercoaster Development Plan**

##### ***Project Initiation***

- Ride storyline
- Feasibility study
- Concept art
- Stakeholder management

- Budget allocation
- Engineering and design of ride track
- Engineering and design of ride vehicle
- Engineering and design of thematic elements
- Engineering and design of control systems
- Engineering drawing package
- Computer model
- Physical proof of concept model
- Design verification
- Company documentation
- Safety compliance documentation
- Operator training materials
- Maintenance training materials
- Emergency evacuation plan
- Permit acquisition
- Source materials
- Source labor

### ***Site Preparation***

- Ground clearing
- Site grading
- Foundation construction
- Utility installation

- Concrete pouring

### ***Ride Fabrication***

- Steel fabrication
- Mechanical component fabrication
- Electrical system assembly
- Control system fabrication
- Paint and finishing
- Factory Acceptance Testing (FAT)

### ***Ride Installation***

- Track installation
- Vehicle assembly
- Mechanical system integration
- Electrical wiring
- Control system programming

### ***Ride Testing***

- Functional testing
- Load testing
- Operational training
- Site Acceptance Testing (SAT)

### ***Scenery Installation***

- Interior decoration

- Queue line theming
- Landscaping
- Signage

### ***Safety Inspections***

- System safety check
- Safety compliance review
- Operational readiness check
- Regulatory inspections
- Safety test reports

## **Project Risk Plan**

### **Risk Identification**

When prompted with, “risk breakdown structure for new ride,” Google Gemini assisted with idea generation for the risk breakdown structure below (Google AI, 2024).

### ***Design and Engineering***

- Improper load calculations
- Inadequate safety features
- Design flaws
- Compatibility issues with existing infrastructure
- Structural integrity

### ***Construction***

- Weather delays

- Supply chain issues
- Labor shortages
- Improper installation
- Terrain and soil complications
- Unexpected site conditions
- Unexpected difficulty in assembly

### ***Regulatory Compliance***

- Non-compliance with established standards
- Permitting delays
- Inspection and approval challenges
- Changes in standards and/or regulations

### ***Safety***

- Potential for human injury
- Potential for slips, trips, and falls in queue and loading platform
- Impact-related hazards
- Improper restraint systems
- Risk of entrapment
- Inefficient emergency evacuation procedures
- Insufficient emergency stop

### ***Environmental***

- Resource consumption
- Possible material waste

- Ecosystem disruption

### ***Operations***

- Operator error
- Equipment malfunction
- Unexpected ride stoppage
- Improper maintenance practices
- Inadequate operator training
- Unexpected down time

### ***Guest Experience***

- Negative perception of ride
- Possibility to over promise and under deliver
- Discomfort or nausea
- Long wait times
- Lack of accessibility features
- Unfavorable guest feedback

### ***Maintenance***

- Repairs require skilled labor
- Difficult to access components
- Lack of inventory for spare parts
- Corrosion
- Wear and tear
- Weakening support structures

- Malfunctioning mechanisms
- Track roughness
- Cracks present

### ***Financial***

- Unexpected construction costs
- Unexpected maintenance expenses
- Revenue shortfall due to low ridership
- Insurance costs

### **Risk Assessment**

**Table 1**

*Risk Assessment Form*

<b>Risk Category</b>	<b>Risk</b>	<b>Impact Level</b>	<b>Probability Level</b>	<b>Priority Level</b>
	<i>Brief description of the risk</i>	<i>Rate 1 (Very Low) to 5 (Very High)</i>	<i>Rate 1 (Very Unlikely) to 5 (Very Likely)</i>	<i>Impact * Probability</i>
Design and Engineering	Improper load calculations	5	2	10
	Inadequate safety features	5	2	10
	Design flaws	5	2	10
	Compatibility issues with existing infrastructure	5	2	10
	Structural integrity	5	2	10

Construction	Weather delays	2	5	10
	Supply chain issues	4	2	8
	Labor shortages	3	2	6
	Improper installation	5	2	10
	Terrain and soil complications	5	1	5
	Unexpected site conditions	5	1	5
	Unexpected difficulty in assembly	4	2	8
Regulatory Compliance	Non-compliance with established standards	5	1	5
	Permitting delays	2	2	4
	Inspection and approval challenges	2	2	4
	Changes in standards and/or regulations	4	3	12
Safety	Potential for human injury	5	2	10
	Potential for slips, trips, and falls in queue and loading platform	5	3	15
	Impact-related hazards	5	1	5
	Improper restraint systems	5	1	5
	Risk of entrapment	4	1	4

	Inefficient emergency evacuation procedures	5	2	10
	Insufficient emergency stop	5	1	5
Environmental	Resource consumption	3	2	6
	Possible material waste	2	2	4
	Ecosystem disruption	3	2	6
Operations	Operator error	2	3	6
	Equipment malfunction	5	2	10
	Unexpected ride stoppage	3	3	9
	Improper maintenance practices	5	1	5
	Inadequate operator training	5	2	10
	Unexpected down time	2	2	4
Guest Experience	Negative perception of ride	2	3	6
	Possibility to over promise and under deliver	2	3	6
	Discomfort or nausea	3	2	6
	Long wait times	1	4	4
	Lack of accessibility features	2	2	4

	Unfavorable guest feedback	2	3	6
Maintenance	Repairs require skilled labor	1	5	5
	Difficult to access components	2	2	4
	Lack of inventory for spare parts	2	2	4
	Corrosion	4	3	12
	Wear and tear	4	5	20
	Weakening support structures	5	2	10
	Malfunctioning mechanisms	5	4	20
	Track roughness	3	4	12
	Cracks present	4	4	16
Financial	Unexpected construction costs	3	3	9
	Unexpected maintenance expenses	3	3	9
	Revenue shortfall due to low ridership	3	3	9
	Insurance costs	2	3	6

**Table 2***Probability-Impact Matrix*

<b>Probability</b>	5	Repairs require skilled labor	Weather delays		Wear and tear	
	4	Long wait times		Track roughness	Cracks present	Malfunctioning mechanisms
	3		Operator error	Unexpected ride stoppage	Changes in standards and/or regulations	Potential for slips, trips, and falls in queue and loading platform
			Negative perception of ride	Unexpected construction costs	Corrosion	
			Possibility to over promise and under deliver	Unexpected maintenance expenses		
		Unfavorable guest feedback	Revenue shortfall due to low ridership			
		Insurance costs				
2			Permitting delays	Labor shortages	Supply chain issues	Improper load calculations
			Inspection and approval challenges	Resource consumption	Unexpected difficulty in assembly	Inadequate safety features
			Possible material waste	Ecosystem disruption		Design flaws
			Unexpected down time	Discomfort or nausea		Compatibility issues with existing infrastructure
			Lack of accessibility features			Structural integrity
			Difficult to access components			Improper installation

		Lack of inventory for spare parts			Potential for human injury Inefficient emergency evacuation procedures Equipment malfunction Inadequate operator training Weakening support structures
1				Risk of entrapment	Terrain and soil complications Unexpected site conditions Non-compliance with established standards Impact-related hazards Improper restraint systems Insufficient emergency stop

					Improper maintenance practices
	1	2	3	4	5

### Impact

Priority Level:	Low	Medium	High
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## Risk Response Development

All 28 teams involved in the project agree that delays will not be acceptable due to having no slack available in the project. The project has a 6-month time buffer to allow for extra time during critical moments of the project. A contingency plan for the high priority risks has been developed in the form of a Risk Response Matrix. It is important to note that the Responsible Team is in charge of, “monitoring the potential risk and initiating the contingency plan” (Gray & Larson, 2021).

**Table 3**

### *Risk Response Matrix*

Risk Event	Response	Contingency Plan	Trigger	Responsible Team
Wear and tear	Mitigate: Train maintenance and operations teams to ensure proper safety checks and protocols are in place	Engineering evaluation to determine if ride is operable	Maintenance or operations inspection prompts any concern	Maintenance, Operations
Cracks present	Mitigate: Train maintenance and operations teams to ensure proper safety checks and protocols are in place	If on ride vehicle, take affected vehicle out of service, and if on ride track,	Maintenance or operations identify any form of cracking	Maintenance, Operations

		temporarily close ride down		
Malfunctioning mechanisms	Mitigate: Train maintenance and operations teams to ensure proper safety checks and protocols are in place	If minor, such as a scenic element, continue operations with the element out of show, and if major, such as emergency braking system, temporarily close ride down	Mechanism malfunctions	Maintenance, Operations
Potential for slips, trips, and falls in queue and loading platform	Mitigate: Design in accordance with modern safety standards and regulations	Have first aid kit readily available for minor issues, and on-site EMTs on call for major injuries	Any human slips, trips, or falls in the ride area	Operations

Contingency funds have also been established to prepare for potential project risks.

“Contingency reserves are set up to cover identified risks; these reserves are allocated to specific segments or deliverables of the project. Management reserves are set up to cover unidentified risks and are allocated to risks associated with the total project” (Gray & Larson, 2021).

**Table 4**

*Budget Estimate*

<b>Activity</b>	<b>Budget Baseline</b>	<b>Contingency Reserve</b>	<b>Project Budget</b>
Labor	\$4,318,200	\$863,640	\$5,181,840
Materials	\$10,000,000	\$1,000,000	\$11,000,000
Land Development	\$2,000,000	\$100,000	\$2,100,000
Thematic Elements	\$5,000,000	\$500,000	\$5,500,000
Regulatory Fees	\$200,000	\$10,000	\$210,000

<b>Subtotal</b>	\$21,518,200	\$2,473,640	\$23,991,840
<b>Management Reserve</b>	–	–	\$1,000,000
<b>Total</b>	\$21,518,200	\$2,473,640	\$24,991,840



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